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***Enhancing the tourist industry through lighting
design:
The Case of Ayia Napa***

*A project submitted to Middlesex University in partial fulfilment of
the requirements for a degree of Doctor of Professional Studies.*

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Abstract of the Research

Title: "Enhancing the tourist industry through light design. The case of Ayia Napa"

Ayia Napa is a tourist resort at the far end of the south coast of the island of Cyprus famous for its sandy beaches and wild night life.

Due to the rapid development after the Turkish invasion of 1974 almost all of traditional Ayia Napa has been destroyed. The old houses have given their place to anonymous buildings and the place has been left without identity. This has a negative effect on the promotion of Ayia Napa as a tourist destination. The general impression of the public locally and internationally is that Ayia Napa is ideal destination for foreign tourists who want to enjoy their holidays by participating in wild parties during the night. The truth is that many families choose Ayia Napa for their holidays too.

My research interest is to find a way to show the true face of Ayia Napa through the use of light. A new nightscape for the town will be created.

The aim of the research project is the creation of a light plan for Ayia Napa that will be used as a model for all the tourist areas of the island starting a new era for the nightscape of the Cypriot towns that suffer from the visual chaos.

The research methodology S.S.M. (Soft Systems Methodology) was used to understand the complexity of the situation and to find out which actions are necessary to bring a change after a deep understanding of the context.

The action research methodology is used for the triangulation of the results and the improvement of the quality of the drawings by continuous revision.

The final product of the research is a document with recommendations for the implementation of the Light plan accompanied by maps and images of the various proposals in a CDROMS.

The main strength of this research proposal is that if implemented, it will change the nocturnal appearance of the town in a sustainable way.

The main weakness of the plan is that the authorities may not be able to find the finance resources in a right time to implement it. Persuading the owners of the amenities to make the necessary changes on the facades of their buildings is not an easy task.

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Chapter 1 - Introduction

The project consists of two documents. The Critical Commentary and the Evidence of Achievement. It is recommended that this text is read in combination with the drawings attached at the end of the document.

1.1 How I developed my interest in the subject

The profession of lighting design offers me the opportunity to explore new horizons regarding the art of light.

My background as an architect who has been called on a daily basis to solve problems of aesthetic and practical nature has contributed greatly in my development as a competent lighting designer. The architect starts from the whole and then he treats the parts. He has a synthetic way of thinking that helps him to create complicated structures like skyscrapers. He knows what each specialist knows what to do and he just coordinates them (Peponis, 2008). The lighting designer is a person with special skills and I see that to be an architect is one thing and be a lighting designer is another.

The programme of the Doctorate degree in Professional Studies is a great opportunity to add a Light Master Plan to my list of projects.

1.1.1 The need for such a research

The creation of a Light Plan for Ayia Napa the most important tourist resort in Cyprus, is a need for my country. The tourist industry is very important for the economy of the island.

Because of the Turkish invasion of 1974, Ayia Napa owes its development to the destruction of the nearby tourist town Famagusta, the famous Venetian medieval town where the tower of Othello is situated.

Ayia Napa is situated at the remaining golden coast of the eastern part of the island.

The town of Ayia Napa was chosen as a good example of a place built almost exclusively for the entertainment of tourists. Nothing reminds of the peaceful village that it was before the Turkish invasion in 1974. Now it's a resort with a strong infrastructure, capable of receiving thousands of people for vacation.

As a newcomer, the tourist looks at the town for the first time. His stay lasts about 5 or 6 days and during these days he has to experience quickly what the environment has to offer. Very often the tourist does not have the chance to ask the locals about the 'true' Ayia Napa and is usually so tired that he will not go and search for the treasures of the area by himself. The points of interest must be found easily. This fact makes this study very interesting because the light will contribute greatly in the formation of an interesting and easily readable nightscape of the town. Night time is more important in tourist areas than in the normal towns. Artificial light is becoming the primary tool for creating the night atmosphere. The tourist is different from the normal inhabitant of a town who knows where to go and how to experience the place better than anyone else. So the light must guide the visitor on how to enjoy the place in the best possible and intelligent way (Coelho 2009).

1.1.2 The importance of the project

'It is desirable that an environment evoke rich, vivid images' (Lynch1960).

The journalist Itsuo Sakane explains the effect of the light produced by 400W metal halide lamp luminaries (lighting fittings) situated at the bottom of the sea of Okinawa. It is an homage to the lost souls of Okinawa the site of one of the bloodiest battle of the Pacific War (Narboni 2004, Motoko Ishi). One of the powers of lighting design is symbolism.

It will be the first time that special lighting fittings will decorate the environment of a Cypriot town. This will change the way that people of Cyprus view the lighting design.

It is challenging to design new lighting fittings. It is a highly creative work that demands special abilities from the designer. The architect as a master of the form (Le Corbusier, 1933) is capable of designing buildings but he is not responsible for designing objects. Some architects are very capable, some others not at all. This depends on ones background and on the special interest in the subject. Lighting

designers also do not design special fittings by themselves but they rely on industrial designers to do the work.

To design the optics of a luminary is complicated, has high cost and it is time consuming. According to my consultant who is a very experienced lighting designer, an intelligent way to overcome this problem is to use the existing lighting fitting and design the support only. By designing the post or the base, the fitting is getting a new position in the context (Oksanen 2008).

Another important issue is the enrichment of the presence of the local culture to enrich the anonymous environment. Examples of this are pubs, the clubbing, the fast food etc. The focus of the lighting on the flora of the area will contribute to achieving this aim.

The fight against the visual chaos must also be mentioned. When the merchandise is anonymous the owner of a souvenir shop has to light the objects under the tents in a way that the client is mostly attracted. The main issue is the 'war' between the owners of the shops as to who is presenting his goods in an eye catching way and not to allow the other owner next door to hide his shop with luminous signs. This daily struggle for 'dominance' is a result of the total absence of a national law that regulates the appearance of the facades of shops. The municipality itself is in a very sensitive position to ask for restrictions on the position of the luminous signs on the facades of the shops. Because of the small size of the municipality, people know each other and it is difficult to be very strict with the voters. This happens also in other areas of Europe (Case of Jesolo municipality at the Venice region in Italy).

The removal of the old lighting fittings that consume a lot of energy and they do not match with the strategy of the new plan is a major issue for a sustainable design.

Creation of routes

Human beings follow the light but not only that. Even if the light is low people will follow the direction they want (Coelho, 2009). Of course, the direction to follow is clear also because of the signs. This is the case at the intersection of Makariou and Krio Nero Avenue (See the map contained in the Learning agreement document). But using only signs is not enough. The connection of two parts of the context should be made by the atmosphere created with light. The question is not to just find my way but also to feel the place.

People like to follow the main flow people, look around and then arrive at the clubbing area even if that means that they have to cover more distance by foot.

The town of Ayia Napa does not have many inhabitants who live constantly throughout the year. For this reason the lighting strategy must be very carefully designed so that it will give the right first impression to a visitor.

The tourist industry of the area will be affected so this is work for real professionals. Professionals have a valid method of working with guaranteed success. There will be a trial of the use of methodologies in design. This work is not just a study for academic purposes but also it is intended to be a work of design that will contribute to the enrichment of the culture of light in Cyprus and to the creation of another piece of work of true professionalism.

A lighting designer arrives at the zenith of his capabilities when he has to create a lighting plan for a town or a city. It is a very brain exhausting activity since the creator of the plan must have a multiplicity of knowledge in various fields. First of all he must know about urban planning, architecture and of course lighting design. He has also a great responsibility (Mc Niff, Lomax 2006).

1.2 Main problems

The main problems that have arisen during the design process of are the following:

- a. There is a need to design roots that create mystification, labyrinth or surprise in the environment (Lynch, 1960):
- b. There is a lack of an exciting nightscape that will help the tourist industry:
- c. No rules exist for more sustainable and more pleasant light in the streets of the town.
- d. There is a need to reunite the parts of the town that are now separate.

The Soft Systems Methodology (S.S.M.) analysis in more detail was helpful on analysing the following problems.

- Bad night environment due to the lack of light plan.
- Light pollution on the beaches created by the hotel owners.

- Feeling of lack of safety due darkness.
- Small monuments and strong elements of the landscape are hidden during the night.
- No provision for different light for winter and summer periods.
- No lighting on the harbour during winter.
- No correct lighting for the monastery of Ayia Napa.
- The lighting of the commercial streets needs improvement.

The constraints

- **Functional.** Courses and spaces to be illuminated.
- **Usage.** Presence of water, commercial areas, leisure use, facilities, nocturnal access, visitor information.
- **Technical.** Equipment and support installation, options, electric power supply options, stability and soils, presence of high voltage, accessibility to luminous points for maintenance.
- **Climatic.** Important climatic and thermal conditions.
- **Ecological.** Presence of fragile flora and fauna, reserves of protected animals and plants species.
- **Regulatory.** Ownership of the site and access, classified areas, historic architecture and proximity to port.
- **Economic.** Total amount for initial budget and subsequent operation.

1.3 My work context

Cyprus is a state surrounded by sea and Muslim countries with totally different cultures. This isolation makes people create their own local 'gods'. There are cases where their work is professionally of low standard and cannot be compared with the work of other foreigner professionals.

The conservative Cypriot is impressed by designers who studied and worked in London or New York at famous and expensive universities. This is perhaps a result of so many years of British domination on the island. Due to the lack of serious criticism in Cyprus, any professional can claim anything. The client usually does not check the credentials of a professional unless he is applying for a university position. Because of the distance of the country from Europe any designer can copy a good work of another foreign designer without any real consequences. The lack of art and

design critics on the island gives the opportunity to anybody to make a statement that may be universally considered as wrong or a product of plagiarism. Plagiarism is accepted if the proposal suites the needs of the client. The people behind the media can control the promotion of one designer instead of another.

There are of course real professionals who produce real professional work. These people do not always enjoy the appreciation of the society since no independent critic had emphasized the reasons why their work distinguishes.

In architecture is easier to copy paste than in lighting or interior design where every space has different parameters derived from context.

Producing real professional work does not mean automatically that it will be presented by the media. The profession of lighting design is new to journalists. It is better to be a good professional above all (Venturi, 1994).

In my opinion real professionalism cannot exist in Cyprus due to the small size of the island (Population of less than a million inhabitants). Most people in Cyprus do not know what good professional work is. As a consequence, they do not really need it and, thus, they do not pay for it or they do not ask for it. Rarely the budget of the project allows extreme time consuming work. Because of this fact professionals offer medium standard of professional work. The small market of the island is not so demanding. In some cases the clients want to be impressed from the designers and be proud that they used the same designer that another rich family used. This does not necessarily mean that the designer produces good professional work.

In my long experience as a citizen of this island I have personally observed that many people consider someone a good professional simply because he has a lot of clients. This is extremely dangerous especially in the field of medicine.

1.4 Assumptions

The two assumptions below are based on personal observations, from informal interviews. They are not tested for their validity as they are part of the inspiration for creative work from the part of the researcher.

- a. The tourists in general expect that the blue colour of the light on white clear stone is directly connected with the feeling of the Mediterranean region. It is also a sign of coolness. Blue light is barely seen in the Northern European countries on external spaces or facades. It is obvious that when we are in holidays we would like to see what we miss in our country. So a good tactic would be to identify what the tourists from Northern Europe are missing in terms of light experiences and offer it in the public space of Ayia Napa.
- b. The material for the poles of the lighting fittings in the busy streets and open spaces of Ayia Napa should be wood because it is more related with the mast of the sailing boats and of the maritime life in general. As a material it is more natural than aluminium and it is considered an ecological product. Because of the high cost it is not included in the proposals.

1.5 Limitations

Limitations are not by any means constraints.

- a. The light plan will not offer proposals in detail for every part of the town. The concept of each proposal will be developed so when it will be the right time to implement the project only the construction details will be missing.
- b. Designing the new lighting solutions for all the facades of the shops is impossible. So the facades will be categorized in different typologies and the proposal for each façade will be developed individually.
- c. The proposal of a lighting plan for a town cannot be tested as easily as the light design of a building. Lighting tests are very time-consuming procedures intended to demonstrate the desired effects of a lighting scheme. Manufacturers of luminaires who provide the samples and technicians or installation firms are involved at this stage. And all of them must receive a payment for their time (Brandi, Geissman Brandi, 2006).
- d. Investment costs for large-scale new lighting systems are generally too high to be implemented in the short term. It makes sense to plan their implementation in stages and to take the life cycles of existing lighting systems into consideration (Brandi, Geissman Brandi, 2006).

- e. The cost of exterior luminaires, including poles and installation, is between 4000-6000 Euros. This is tenfold the cost of interior lighting, calculated per luminary.
- f. The Urban Planning department has already substituted the old lighting fittings at Makariou Avenue. The next intervention is Nissi Avenue. For this reason the proposals suggest the supplement the new street lighting. The Municipality does not afford to pay the expenses of the lighting fittings of the roads.

Chapter 2 - The Terms of Reference/Aims/Objectives/Research Questions and Literature Review

2.1 Aims and objectives

The Aims

The primary aim of my present project is the creation of a Light Plan for Ayia Napa that will become a model for all the tourist areas on the island of Cyprus, whereas a complementary aim is the invention of a nocturnal landscape for Ayia Napa, which stimulates tourism, emphasize the landmarks and monuments and creates a pleasant environment that will support the economy of the town.

The objectives

The objectives have been revised many times during the whole procedure of design to be the following:

1. Modification and redesign of the existing nightscape.
2. Involving the local authorities and people implicated in the tourist industry in the effort to apply this plan
3. Use the light plan as national model for the tourist industry.
4. Save energy illumination.
5. Help the orientation of the people.
6. Accentuation of the monuments and points of interest.
7. Boost of tourism.
8. Create safe places for people and the traffic.
9. Create a nice nocturnal environment.
10. Promote visual comfort.

2.2 Research Questions

1. How to produce the plans and a booklet with directives for interested parties that are really effective?
2. How to produce a light plan appropriate for Mediterranean people who prefer cool and strong light that provides a sensation of freshness (Bianchi 1991) and for tourists from Northern Europe who prefer warm and low intensity light? Tourists will like a light scene that makes them feel that they are in a

Mediterranean environment or one that reminds them a cooler environment and thus feeling fresh and enjoy holidays?

3. How to define the scenes appropriate to the celebration of the historic townscape?
4. How to deal with the periodic lighting of the site for festive uses?
5. How access lighting for parking lots and pedestrian areas on the site be assumed?
6. Is there a need to design any special huge structures to make the night scene more interesting?
7. Is it possible to find a way to satisfy the demands of the local shop owners to make their enterprise more visible than the one of the neighbour next door without compromising the visual comfort?
8. How to develop a flexible plan that can adjust to the changed use of the establishment and thus the lighting conditions?
9. Can a Master light plan really help the local tourist industry to increase the pleasures experienced by the tourists visiting the island and make them become repetitive tourists?
10. How to understand the viewpoints of the people involved and propose the right solutions to the problems?
11. How to improve the living environment for the local residents?

2.3. Terms of Reference

The following terms are fundamental for the process of lighting design. These terms will be used many times throughout the text.

Lighting Design

Lighting design is the design of natural and artificial light.

It is the profession of creating new spaces with the new construction material of 2000 called light. It is a process of design so it falls into the category of the arts. The director of the Circus 'Circe de Soleil' France said that only when the design has a meaning is an art (BBC WORLD radio interview, June 2010).

The official policy of PLDA (Professional Lighting Designers Association) considers that a lighting designer has to study the following aspects of a project:

- a. Health and wellbeing of body and mind. This includes physiological and psychological aspects.
- b. Architectural
- c. Functional
- d. Ergonomic
- e. Cultural
- f. Personal
- g. Emotional
- h. Aesthetic
- i. Sustainable

Mr Shaw, director of sustainability for P.L.D.A., does not believe that lighting designers are born but are trained. There is a unique combination of artist and engineer needed to be a good lighting designer.

Light and shadow

Professional lighting designers have investigated the nature of shadow.

Gernler, an experienced lighting designer member of P.L.D.A, during the London convention of P.L.D.A. in 2007, states that objects can only be understood with reference to their opposite. Leaving whole areas dark but lighting specific points creates more dramatic spaces. The play of brilliants as Richard Kelly would have called it" (Knowles, 2008).

Shadows occur randomly. Shadows can evoke associations, suggest depth and inspire our imaginations. When shadow comes into play is not the dark part of the object that comes into play but the light ones. This reduction of shadow to contour and surface – the attractions it gives rise to, its ambiguous and enigmatic qualities are what has fascinated artists over the ages. Shadow is immaterial. Objects without shadow appear to float. (Schmid, 2006).

Shadow is the sister of light. Light cannot exist without the presence of shadow. This is how we perceive and we see the objects in three dimensions. The painters, the sculptors, the lighting designers, the photographers, the directors of photography in the cinema and other professionals are using shadow in their work. The International committee for the illumination C.I.E provides recommendations about the matter where the designer is urged to keep the three dimensional aspect of the objects in an interior space. In exterior spaces the phenomenon of three -

dimensionality with the use of shadow is still valid in the case of exterior surfaces of buildings. In open spaces that surround a building the use of shadow is different. When the shadow surrounds a building then the building needs less light to be sufficiently lighted because it looks brighter in a dark environment and renders the project energy sustainable.

Shadow in green areas is also applied as an act of respect for the environment. It is also a pause from the busy space we live every day.

To conclude this paragraph, Henry Fox Talbot, inventor of the positive/negative photographic process describes shadow as follows: 'You cannot illuminate shadow or subject it to the sun. It thus remains a puzzle, disappears as soon as you start to study it more closely or make any attempt to capture it' (PLD magazine, 2009).

Colour and light

The application of coloured light affects more than the design of the built environment and requires careful consideration and planning (Bradikow, Rohne PLD magazine, June 2006).

Colour in light is related to different cultures and different emotions and, thus, needs careful application.

Blue colour lighting is not considered as colour like others. The reason is that blue is the colour of the sea and the sky that are not blue in reality (Descottes, 2005).

Colour mixing in lighting is an additive process. All colours when mixed lead to white. The primary colours in lighting are the Red, the Green and the Blue (RGB for the coloured changing lighting fittings), (Bianchi, 1991).

Eco light (Ecologic light)

I.A.L.D. (International Association of Lighting Designers) defines sustainable design as follows: 'Design that meets the qualitative needs of visual environment with the least impact on the physical environment. It includes maximizing the use of day lighting, minimizing the use of energy, avoiding skyward illumination, ensuring system durability and maintainability, encouraging environmentally responsible manufacturing processes and advocating the development and use of renewable energy and other sustainable building materials and technologies.' (www.iald.com).

The energy use of an incandescent lamp with an occupancy sensor is lower than that of a fluorescent lamp which takes too long to warm up to full light output. The cost of a simple down light with a capsule incandescent lamp is also much lower than that of a luminaire with fluorescent lamp.

Time of use and dimming are also important considerations. The fluorescent lamps need a special gear to be dimmable and they are more expensive. The metal halide lamps are not dimmable yet. The high efficacy lamp in a low-efficacy efficiency luminaire is no bargain. For example the compact fluorescent down lights are below thirty-five per cent in efficiency (Miller, Mc lowan,2007).

The Eco-design directive 2005/32/EC of the European Union is establishing a framework for the setting of eco design requirements for energy using products. (E.U. Journal, 2005). Among others, two types of lighting fixtures such as street and office lighting fixtures. The directive is relating to everything with an impact on environment, from raw materials, through manufacturing and using the product up to its disposal (life cycle).

One third of the streets in Europe are still lit with technologically old, totally inefficient systems. The emissions could be reduced by 3.5 million tons of CO₂ by modifying these types alone. Municipalities in Europe could have saved 600 to 700 million Euros of running costs per year in the case of a modernisation programme of existing systems (Luce and design magazine, July 2006).

Street lighting lamps should have an efficacy (Ratio of flux from the lamp to power to lamp ballast circuit) rating greater than 70 lm/W (Double than that of the fluorescent lamp). Ballasts (the electronic part) should be of the low loss type.

Light Emission Diodes LED lamps and solar panels for a save energy design are not a panacea. A recent research by the French National Agency on Food, Environmental and Occupational Health Safety A.N.S.E.S. (2010) shows that LED lamps of high intensity can cause a problematic eye growth to young kids. Lighting designers have to use LED lamps with caution, because their effects on human health are not fully tested. Not to mention the LED lamp preference to only some colours of the spectrum.

Solar panels and their gears are subjected to thousands of luxes every day and so their life diminishes due to the high content of UV rays in the Cypriot sun.

The use of controls in street lighting and urban areas is fundamental for energy saving. Lighting fitting with an incorporated twin light is capable of switching on and off the lamps in completely dark area or strict daytime. A ten per cent of energy saving can be achieved in this case.

An energy saving strategy is part of the overall strategy of the design. A designer who knows the Gestalt (means form in German) theory of perception can apply it to integrate theory and practice in an energy saving project. In the case of a tower the designer can illuminate only the base and the top. The human eye completes the image by itself without the need to illuminate the whole tower from top to bottom. The result is a very pleasant and professional zone. The luxes thrown on the surface of the tower are reduced.

Lighting plan or Plan Lumiere

Lighting delirium dates back from the nineteenth century and early twentieth century. (Narboni, 2007)

The most important aims of the lighting are the following:

1. To save energy illumination.
2. To support the orientation of the people.
3. To accentuate the presence of the monuments and points of interest.
4. To boost tourism.
5. To create a safe environment for people and traffic.
6. To create a nice nocturnal environment.
7. To promote visual comfort.

The above are mentioned as objectives in the paragraph 2.1.

The light plan is in accordance with other plans for the city. Engineers, contractors, suppliers and the authorities are involved in the project.

The Piano Regolatore per l'illuminazione Comunale (PRIC. The Master Light Plan for the cities in Italy) has the following characteristics: It has to have a similar jurisdiction to the other plans. The Urban, the Traffic, the Noise, the Green etc.

1. It has to be discussed by the local authorities.

2. It has to be a point of reference for the future for the local authorities and the agency responsible for the illumination.

The aims of the PRIC are the following:

1. Provide security.
2. Bring improvement of the visual comfort and quality of the social life.
3. Bring out the value of the cultural heritage.
4. Integrate the lighting fittings with the environment.
5. Reduce the light emission to the direction that is not necessary.
6. Optimize the costs of use and the maintenance.
7. Save energy.

(Italian Association for the Illumination AIDI).

The light planners are providing a set of technical drawings and a booklet that contains recommendations about the implementation of the plan in various phases.

Context

‘See context as alive and help it to be alive’ (Venturi, 1950). In his book ‘Learning from Las Vegas,’ Venturi is analysing the context in depth. The analysis of the physical aspects of the luminous signs and buildings in the strip had led to the analysis of the economic, cultural, symbolic and historical context.

The building and its context will be changing forever. The dictionary describes context, as around a text or discourse. Context is associated with patterns and systems.

Cultural context: How the context can teach architects to design structures that are found in minor architecture.

Context in context: Means the fluctuations of the economic, cultural and social life around us, to understand its systems and respect the patterns they form (Denise, Scott and Brown, 2004).

C.I.E.

The European Committee for Standardization (CEN) is responsible for advancing knowledge and providing standards to improve the lighted environment (WWW.CIE.CO.AT). This non profit organisation is devoted to worldwide

cooperation and the exchange of information on all matters relating to the science and art of light and lighting, colour and vision, photobiology and image technology. It is also an International Standardization body. Through CEN the various standards are created and developed. Each European state can adopt the International standards if there is any no relevant national standard. Each member state, included Cyprus must vote for each standard to adopt it as a national norm.

CIE is publishing technical reports for the fields that the organisation is responsible of. These guides can be used by any professional as a guideline for his work. Nobody is obliged to implement the standards unless they became norms of the state.

Luminous signs

Movement along a street is perceived in a structural order of fixed elements. The street, the sky, the rhythm of the lamps and the yellow lines constitute an orientation system within the rest just happens accidentally (Lynch,1964). Lynch discovered that more than half of the objects perceived in the street by passengers and pedestrians are not those which are found close in front of them, but these which are situated on the sides. This is the explanation why the sign must be big and situated along the street.

Velocity is the factor that determines the focal angle of both drivers and pedestrians. When velocity augments the attention shifts from the detail to the general.

Light pollution

When the light source emits light above a 90 degree in relation to the surface of the earth, the particles are directed towards the sky creating an incapacity for the observer to see the stars. As the brightness of the sky increases the contrast decreases and therefore the possibility to see the stars with lower luminosity is reduced (iGuzzini study centre, 1999).

An example of light pollution is when light from a projector hits the white surface of a sign almost perpendicularly dispersing part of light into the atmosphere.

Units of light

Illuminance **E**

It is measured in lux (lx) and it is the basic unit for lighting. All the recommendations and standards are referring to this unit. For example people below 35, need to receive 500 lx on the work top. Illuminance does not take into consideration the reflectancy of the material. If the surface is dark then less light arrives on the eye. The luminance L is coming into the game.

Luminance L

Is the ratio of the light intensity emitted from a light source from a certain direction and the apparent area of the surface. The unit is Candelas per square meter, cd/m^2 (Bonomo, 2006).

It is the only unit which is visible to the eye.

Glare

Describes the difficulty to see in the presence of very bright light. It is divided into the permanent and instant glare. Glare is caused by a significant ratio of luminance between the task and the glare source. The eye adaptation has a significant impact on the experience of glare. If we reduce the contrast to the rest of the scene then we have reduction of glare (Forcolini, 2007).

Environmental issue

The biological environment is the symbiosis between the physical environment and the biological life forms within the environment and includes all variables that comprise the earth (Truelove and Joireman, 2009).

In the case where there is absence of these issues the following sensitive factors for a good life are in danger: (WWW.SCIENCEDAILY.COM).

1. Air quality
2. Pollution
3. Spread of diseases
4. Global warming
5. Human and human life
6. Ecology

Prof. Terzi proposes the term “Environmental Lighting Plan” for the tool that could be used to define the general guidelines of urban lighting and work criteria for achieving rigorous interpretations of sites (Terzi, 2001).

2.4 Literature Review

2.4.1 Professionalism

Light design is the art of seeing (Brantson, 2006) and communicating light to others (Clausen, 2009). Design is a noun and a verb. It can refer either to the end product or to the process. (Lawson 2000).

Prof. Herman Hertzberger (1991) during his lessons to the students of architecture quotes: ‘Everything that is absorbed and registered in your mind adds to the collection of ideas stored in the memory. A sort of library that you can consult whether a problem arises’.

A lighting designer is the professional who is creating the appropriate environment for a city, protects the people from negative consequences on their health resulting from wrong lighting at work. It is the person who through lighting design passes the proper information to the observers concerning the history of a monument in a certain context. Is the person who participates in a team comprised by the architect, the engineer, the client and others. The role of light is multi faceted and the role of the lighting designer has no defined limits.

Bruno Viterbo an Italian lighting designer who spoke about lighting during the Professional Lighting Designers Convention in 2007 considers that Professional lighting design is a post modern activity, it is multi-disciplinary and it requires training, culture and a broad knowledge.

Lighting creates identity for buildings. Architects build the material, lighting designers build the immaterial. Mr Viderbo states that Lighting designers differentiate themselves from other lighting professionals by the ability to produce a solid concept, which is the key to their value. The designer needs to explain aesthetics to engineers and explain function to interior designers (Oct. 2007, Professional Lighting Designers Convention 2007, p.33).

Jutte Basler an Austrian lighting designer argues that the lighting designers must not be the assistants of the architects but because the designers can do more than the architects think they can (Oct. 2007, Professional Lighting Designers Convention 2007, p.52).

Prof. Peponis a Greek origin professor at Georgia University in the U.S.A. defines the character of the designer as a flexible minded person who takes as given concrete notions and he converts them into artistic solutions. He is also able to merge elements that are not easily combined (Peponis, 2009).

There is a definition for the ethical aspect of designing. 'Rules are substitute for thinking' (Branston, 2009).

In the case of Ayia Napa I followed this philosophy knowing the rules and choosing the standards that are essential to be followed in detail and those which shouldn't be considered as fundamentals. I know that the right atmosphere through light is not created by just following the rules.

2.4.2 Lighting plans

a. The case of Rome-Italy. The stage management.

The size of Ayia Napa is tiny compared to that of Rome the capital of Italy, and of course, Ayia Napa does not have the same number of monuments as Rome. Nevertheless some elements of the lighting strategy for the Lighting Plan of Rome (Terzi, 2001) are applicable even in a small scale project like the discovery of the fragmentation of the city image.

The architect Terzi is using the term 'stage management' to describe the act of interpreting what is to be illuminated in a given location or in an active urban centre and the lighting methods to be adopted on the basis of a detailed knowledge of the urban, morphological, functional and historical characteristics. There are many stories to reveal through light. Rome is a layer of many different historical periods. Christian churches within Roman monuments. The Pantheon is a very good example.

The various stages of Ayia Napa are the natural landscape, the sea water, the sand, the rocks, the monastery with the 500 years old tree situated inside an

old Venetian palace with its aqueduct, the beautiful plants, the lemon and olive trees.

In Ayia Napa the stories to tell through light are interesting as in the case of Rome but the context, history and structure are different.

b. The case of the city of Lyon - France. 'The City by Night'

Like the human organism, the life of a city is to an extent governed by existing random alterations between night and day (Hernandez Conzalez, Phd). In the case of a tourist town the evening for a vacationer means a continuation of a relaxed day that started with a rich breakfast at a hotel.

The evening of a worker in a city means having a quick drink with friends right after work and then going home and seeing the family before going to bed or going out driving in the busy streets to the cinema, to the pub or to a restaurant.

The twentyfour hours schedule was related to the rate of life of the great metropolis, but now is mainly visible in the urban context of the historical city centres, where the night time activities depend on the number of tourists.

The slogan 'by night' created at the end of XIX century, has been adopted throughout the world encouraging the tourists to discover attractions of the cities during the night.

The city of Lyon has adopted the light plan in parallel to two other plans. The Green Plan (treatment of the green zones) and the Blue plan (revalorization of the river's role in the city).

While for most of the cities which are commercial centres, the night life is essential for the image of the city while in tourist areas like Ayia Napa night life is essential for the economy of the town. Most of the economic activities in Ayia Napa happen after sunset. Personal observations made on me confirm that only few of the tourists leave their beds and umbrellas to go and search food in the commercial strip during the day. The breakfast provided in the hotel is so rich that they feel hungry late in the afternoon. On the beach there

is always something to eat or to drink. Looking for a good restaurant or a nice pub is part of the pleasures of a quality vacation.

The city of Lyon had decided to export its expertise on Plan Lumieres and festivals from 1980 through the participation of the Lighting Urban Community International L.U.C.I. Many big cities and universities in Europe are members. The authorities of the city of Lyon have realised that it could not act as the only actor in building the branding 'city by night' that later became 'Plan Lumiere' or Light Plan, Fete of lights and then light plan and then L.U.C.I. It has thus started to build relationships with the private sector (Enterprises, professionals, material producers, and universities).

In the case of Ayia Napa, a similar event could be organised on a smaller scale. Summer festivities are an option. The difference of the event in Lyon is the aim. In Lyon the aim is to promote the image of the city, in Ayia Napa is to conduct the flow of the tourists and the locals to the area.

c. The case of the city of Paris, Architecture as a canvas for light

The Architectural Lighting Magazine of January 2008 has published an article on the urban redevelopment of Paris. The lighting strategy developed by CONCEPTO studio led by the lighting designer Roger Narboni is divided into two parts. The 'extraordinary' and the 'ordinary' town. The city entrances are part of the first and the designers had the idea of illuminating the anonymous tall apartment blocks and public buildings with vertical linear light and specifically light emitting diodes L.E.D.

This proposal led to the idea to intervene on the facades of some chosen hotels near the port to create a magic atmosphere during the night.

2.4.3 Strategies for Urban Lighting

Johan Moritz, a Swedish light designer responsible for the light plan of the city of Malmo in Sweden, was inspired by the book of Kevin Lynch 'Image of the city' (Mondo-Arc magazine 2006). It seems that the seminal book of Lynch is a valid tool for lighting designers and urban planners who want to study the structure of the city, to define the problems of connection between the various parts of the city and to investigate how a citizen is perceiving the space.

Dr Peponis, professor at the school of architecture at the Institute of Technology of Washington D.C. of U.S.A., during a seminar in Cyprus on December 2009, describes Carlo's concept about the arrangement of the statues inside the Castel Vecchio (Old castle) of Verona Italy. Carlo Scarpa who was a famous Venetian designer of the eighties is known for the detailed design of structures for museums and pioneer of the museography. The route of the visitor in the castle is influenced by the position of the statues and their views in the rooms. In one case the visitor was getting the first experience of the space by looking at the back of a statue instead of the front. In a similar way, a lighting designer can manipulate the views so the visitor will experience the space according to the stage management (Terzi, 2001) as it is set by the designer. The designer has to focus on determining the focal points. The points from where we can see many interesting parts of the city.

Planning a lighting design for the cities is about following a certain root, stop to enjoy a view, sit in a square and look around and so on (Brandi and Brandi, 2005).

a. The case of the town of Jesolo - Venice Italy, 'The Venetian Ayia Napa'

Lido di Jesolo which is the tourist part of the town of Jesolo is chosen because is a similar case as Ayia Napa. I have studied in Venice and the first year I was commuting every day from Jesolo to Venice. This experience allows me to know the context very well. I have recently updated my experience of the existing situation through internet.

The similarities of Lido di Jesolo and Ayia Napa are the following:

1. They both have sandy beaches and sunny summer days
2. The economic activities in both towns are similar
3. The monuments of both are of a very limited number
4. They have almost the same size of population
5. They both attract the tourists mostly during the summer

Through a telephone interview with the engineer of the municipality of Jesolo I have gathered the following information:

The owners of the premises of Lido di Jesolo have the same needs as their Cypriot counterparts: The headache of every entrepreneur on earth: How to attract the client.

The Italians are exaggerating in luminous signs but they cannot use strong projectors due to the existing national law on the 'visual order' of the facades of the buildings.

The policy of the authorities to fight this strange for the Italian history 'anarchy' is to try to find a compromise with the owners, not to be too strict as the town does not have a light plan yet. Responsible for the creation of such a plan is the public organisation MATRIMONIO JESOLO which is responsible for the overall development of the area.

The question which was raised is why in Jesolo a trend to create visual chaos when in other parts of Italy there is no such phenomenon? In both cases, in Ayia Napa and in Lido di Jesolo the anarchy of the signs is born from the fact that the client is a foreigner and that both towns are not true towns in a sense that the inhabitant is always a newcomer who has nothing to do with the culture of the area. The whole town is an enterprise which needs to attract the client. The message must be read easily and quickly. Like the case of Las Vegas U.S.A.

In my opinion a correct strategy must take into consideration the facts analysed above to avoid a complete failure.

2.4.4 Lighting design policies

The Commission Internationale de l'Eclairage-International Commission for Illumination.(C.I.E.).

National committees

The affairs of the CIE are organised in national committees which have the responsibility for decisions on all members relating to the organization. Cyprus does not have any national committee yet. Greece has recently established a national committee that is considered an associated national committee, a step before becoming a regular national committee.

CIE has more than 120 active technical committees. These committees establish consensus standards and recommend practices which affect the public and the lighting industry alike. CIE publishes standards, technical reports and

recommendations- all prepared by the technical committees. More than hundred of these publications including ISO/CIE standards have been issued so far.

Comite' Europeen de Normalisation European Committee for Standardization. (C.E.N.).

It was founded in 1961, by the National Standards bodies in the European Economic Community.

Cyprus is a National member state and as applies with all National members, the standards are sold and distributed by a local organization the Cyprus Organization for Standardization (CYS).

It is the responsibility of the CEN countries to implement European Standards as national standards to distribute and sell them and to withdraw any conflicting national standards. According to the responsible person of the CYS, the only standard that is adopted by the Cyprus Government as a law is the 16th edition of the BRITISH STANDARD INSTITUTION (BSI) BS 7671 for setting the standards for electrical installations. The 17th edition of the same standard is now adopted as obligatory in the United Kingdom.

2.4.5 Technical reports

The status of the documents is advisory and not mandatory. This is the official policy of the C.I.E. As the American lighting designer Branston mentions, the designer should not take the recommendations as the tools to create a strategy for the lighting design (Branston 2005). This is a work without any interest for a real professional.

The terms mentioned in this section are helpful for the understanding of the text.

Guide to the Lighting of urban areas, CIE 136-2000

The purpose of this publication is to supplement the recommendations for the lighting of public thoroughfares within urban areas which are listed in Publication CIE 115-1995 and 32-1977. This guide includes the justification for the lighting of these of these public thoroughfares and methods of lighting specific areas such as cycle tracks, pedestrian areas and malls, residential and other non- arterial routes, alleys and lanes. The recommendations will cover analyses of lighting criteria, environmental aspects and installation design.

Chapter 3 - Methodology

The chapter contains the following:

- a. Rationale of the philosophical paradigm into which my research approaches fall.
In this section I analyse the research paradigm I have chosen.
- b. Rationale for the research approaches I am employing in my research.
In this section I am explaining how the action research approach in this research project is the continuation of S.S.M. approach.
- c. Rationale of the data collection techniques I am using within my research approach.
This chapter deals also with the description of how the data are analysed and used in the case of lighting design, how the photographic material has been collected and how the software has been used.
- d. Triangulation/Validity/Reliability.
An explanation of how the data are being triangulated, validated and checked about reliability.
- e. Methods of data analysis.
Articles, books, images from diary from trips in Europe are among the data that have been used.
- f. Ethics.
Ethics is always a very sensitive matter and it has to be always taken into consideration.

3.1 Rationale of the philosophical paradigm into which my research approaches fall

A paradigm may be viewed as a set of basic beliefs (or metaphysics) that deals with the ultimate or finest principles. It represents a world view that defines for its holder, the nature of the 'world' the individual's place in it and the range of possible relationships with that world and its parts as for example; cosmologies and theologies do (Guba and Lincoln, 1994).

The biophysical environment is the symbiosis between the physical environment and the biological life forms within the environment, and includes all variables that

comprise the Earth's biosphere. The biophysical environment can be divided into two categories: the natural environment and the built environment, with some overlap between the two (Britannica Concise Encyclopaedia). So lighting of open spaces of buildings and of cities is an environmental issue.

The positivist and reductionist perspectives present grave weakness that cannot be dissociated from social and environmental degradation in Western societies and probably in other societies where they have been applied (Schrender, 1994).

A definition of Positivism from Britannica Concise Encyclopaedia: 'A philosophy and holding that metaphysical and subjective arguments not based on observable data are meaningless. Also called logical empiricism.

The positive theories are descriptive and explanatory systems because they can identify causal links, can predict behaviours of the objects in question (Groat and Wang, 2001).

But logical positivist geography for example has excluded values, meanings and interpretations and so it is no longer applicable. Society cannot be studied in a scientific way (Jones, 1984).

The interpretive - constructivist paradigm represents a first alternative where knowledge is seen in terms of personal constructs, issued from subjectivity and social interactions. In this paradigm, knowledge is interpreted through the researcher's understanding of the subject who produced it (Hoffman, 1994). In constructivism knowledge consists of those constructions about which there is relative consensus among those competent to interpret the substance of the construction. In critical theory knowledge consists of a series of structural historical insights that will be transformed as time passes.

Interpretivism according to Heidegger is the goal of understanding the complex world of lived experience from the point of view of those who live it. The interpretivist researcher must struggle with the paradox of how to develop an objective interpretive science of subjective human experience. Interpretation is coming true through sketches or experiences (Schwandt, 1998). The context of this project is readable through maps and images. The behaviour of the people is interpreted through open interviews that reveal the root of their actions. (Owners and tourists).

Transformations occur when ignorance and misapprehensions give way to more informed insights by means of a dialectical interaction (Guba, Lincoln, 1994). The major goal of this paradigm is to describe and explain the social interactions, not to generalize findings. It encourages people to change the way they think about what they are doing, rather than suggest ways in which they can and should change what they are doing (Carr and Kemmis, 1983). The enquirer constructs a reading of the meaning making process of the people he or she studies (Schwandt, Groat and Wang, 1994). The process of the lighting design does not aim to change the way people think but to give a solution to real problems through creative activities.

The second social critique paradigm is another alternative which is based on the interpretation of the construction of knowledge, but also aims at changing participative practices emancipating participants through access to information and knowledge (Fienn, Robottom, Hart and Stevenson, 1993).

Social critique paradigm research models are research actions to define the research problems. Researchers are rather engaged in the research process as a learning process.

The positivistic behaviourist approach suffers from weakness giving it very little chance of producing the desired changes in environmental situation. A problematic aspect of this paradigm is its assumption that knowledge is value free, causing it to disregard many of the moral ethical, political and economic implications pertaining to environmental problems. The action research approach, which has been used in this project, along with the Soft Systems Methodology, may be subsumed in the interpretive paradigm. (For further discussion on methodology refer to paragraph 3.2).

For Hegel, the famous German philosopher of the eighteenth century, phenomenology is an approach to philosophy that begins with the exploration of phenomena. Epistemologically, phenomenological approaches are based on a paradigm of personal knowledge and subjectivity. Personal perspective and interpretation are very important.

Pure phenomenological research seeks essentially to describe rather than to explain (Husserl, 1970). Action research is a phenomenologically based research methodology.

3.1.1 The nature of environmental problems

The creation of a light plan for Ayia Napa aims also to solve an environmental problem.

The light pollution, waste of energy, annoying glare, monuments and points of interest illuminated in a wrong way or kept in complete shadow etc.

What are the characteristics of an environmental problem?

Environmental problems originate from social practices and the values held by people and societies (Van Rensburg, 1994). In other words, environmental problems do not exist by themselves but are perceived and conceived as such by observers through a cultural system of beliefs and values.

Environmental problems are also complex. Five dimensions constitute this complexity.

- They are multidisciplinary.
- The different possible ways of looking at them.
- The lack of information concerning them or their inconsistencies.
- The necessity of group interaction for decision making.
- The fact that the solutions themselves are often controversial and value laden.

We can represent the process of defining a problem as a cognitive map made of a problem space and a solution space (Bardwell, 1991). Searching for and identifying solutions and implementing an action and evaluating progress are falling into the solution space. Most problem solving modes are designed to rapidly bring the participants to the solution space, spending little time in the problem space (Bardwell et al, 1994). In other words many projects have to be solved by having their problems previously well defined, especially when these problems are complex.

This strategy is intended to increase the amount of time spent on analysis and synthesis and reduce the time spent on the synthesis of bad solutions' (Groat and Wang, 2002).

3.1.2 Primary strategy. Fieldwork

The S.S.M. and Action Research Methodology

Does a problem - solving model with the needed emphasis to the construction of a problem definition exist in another field? A model from the field of systemic, the Soft Systems methodology seems to present an important feature (Checkland and Scholes, 1990).

For the professional lighting designer the points of observation of a building are very important. It is considered a waste of energy and lack of professionalism considering all the sides of the building equally. An architect is usually looking at his building from above.

The lux-meter is an instrument that measures light intensities. It was used to document the existing situation and create the maps of the existing light intensities.

After the completion of the analysis of the context the concept is finalized and ready to be implemented by concentrating on the singular areas and the singular problems mentioned in the general concept. Now is the time to develop the concept of a particular area. This is not different from the development of the general concept except that I can in this stage go in detail. The points of observation, sketches of the idea, photos taken on the spot during the day so they can be easily manipulated with the programs of presentation.

3.1.3 Secondary strategy. Desk work

Narration is very important in the phase of describing the lighting conditions in a city. All factors are connected and nothing is left isolated (Brandi and Brandi 2006).

The light design is a story telling matter. The presentation should be accompanied by text describing the feelings of the designer, the concept with the sketches, the plans with the lighting fittings and of course the calculations of the software and the verification of the calculations by hand. A calculation of the energy demands is vital for the verification of the reliability of the project.

Some designers have a fixed idea in their mind and they develop it without making the proper research in advance and without being able to develop the concept of an

idea going deeply and reevaluating it many times. Sometimes they make a circle by thinking always in details that may not be so important at the first stage. Limited time is the enemy of good design (Branston, 2007).

The communication with the client is very important. The images of the ideas should not be out of reality and create the frustration of the client. In this particular case the rendering skills of the designer is important on how he can represent the light in different situations that only he can imagine. The designer has to design his own special lighting fittings and insert them nicely in the context. The case of application of special lighting fittings is applied when the existing market cannot offer the best or when the designer wants to create something special for the particular project that will have a cultural impact on the image of the whole intervention.

These special fittings should be incorporated in the context presented during daytime so the co-existence of the new structures and the surrounding building environment is harmonious. The lighting fitting becomes a piece of urban furniture with a double function. To decorate and to illuminate.

The aim of the structural details is to avoid any bad surprises during the installation of the special fittings and other structural pieces needed for the completion of the project.

The list of the specifications is very important so the suppliers will give the right product and the right price to the designer. The 'sequence' of the actions taken by any tourist and the experience of the place as it is proposed by the designer must be presented with the other documents.

3.2 Rationale for the research approaches I am employing in my research

Soft Systems Methodology deals with human activity systems in opposition to natural, designed physical and designed abstract systems (Checkland, 1981). Human activity systems can be easily constructed, modified or improved (Mellouk, 1993).

A human activity is being considered as part of a system. The perceived event as 'taken place' and what is perceived as 'being desirable' have frequently not clear definition (Checkland, 1981).

Checkland talks about problem situations presenting the following characteristics:
All complex problem situations are constructs.

- The conceptualization of the problem situation always depends on the perceptions and the perspectives of people and cannot be tested or validated through empirical surveys.
- The perception of the problem situation depend on the World View (Weltanschauung) of a person and so derives from the interplay of values, norms, convictions and other cultural, social and personal referents.
- The problem situation is neither rigorously definable nor accessible through a single scientific path. This is why we cannot really speak of solutions to problem situations. Only of improvements which are relative to the world view used.
- The environmental problems can also be described as 'soft problems' because of their 'social' nature.

Soft Systems Methodology is not perfect. Some of its fundamental characteristics severely limit its direct transposition to environmental problem situations. For one, the Soft Systems Methodology is concerned with one system at a time, while environmental problems are the results of interactions between many. In this project the S.S.M. is used mainly for the analysis and definition of the problems. Another difficulty is the excessive importance of the researcher at the system modelling step. I think that the part of this methodology in charge of defining the problem situation can be used to improve models in environmental situations.

3.2.1 Defining the problem situation with the Soft Systems Methodology

Investigating and defining the problem situation must be done through a cultural dimension, which includes the analysis of the intervention as well as of the social and political systems (Checkland and Sholes, 1990).

Since an environmental problem involves many human activity systems, a root definition was produced for each of them. One possible way to achieve this is by identifying for each human activity system the following six characteristics.

A research method that is more suitable for the analysis of the context of Ayia Napa is the Soft Systems methodology S.S.M. employing mostly qualitative data collection techniques. Following a basic shape of S.S.M. is to analyse a real world situation of concern that yields to Relevant Systems of purposeful activity, comparison of models with perceived real situation and define the action needed to improve the situation.

To do systems thinking is to set some constructed abstract wholes, (often called systems models) against a perceived real world in order to learn about it. Within systems thinking there are two complementary traditions. The 'hard' tradition takes the world to be systemic. The 'soft' tradition creates the process of enquiry as a system S.S.M. in a systemic process of enquiry which also happens to make use of system models. The human activity system is a set of activities so connected as to make a purposeful whole, constructed to meet the requirement of the core system image (Checkland and Scholes,1990).

The main advantage of this method is that S.S.M. (Soft Systems Methodology) places more emphasis on analysing the problem and possible solutions before an action is taken. Over the design process a schema is analysed, refined, tested, analysed again, and so on, until a responsive schema emerges. In my opinion the disadvantage of this method is that the correct analysis of the context relies on the creation of diagrams and rich pictures that describe the situation as it is perceived by the researcher.

3.2.2 Conceptual modelling

The various systems mentioned above will create the models which are the root definitions. The root definitions express the core purpose of the purposeful activity system. This system will help me create the proposal. Each model will then be compared with the real situation. To formulate the root definitions I will consider the elements C.A.T.W.O.E.

- C** Customers: The victims or beneficiaries of T (transformation). Those who caused the study to take place.
- A** Actors: Those who would do the T and whoever wishes to do something about the situation in question.
- T** Transformation: The conversion of input to output.

W Weltachanung: The world view in German. The world view that makes the T meaningful in context.

Owner: Those who could stop T.

E Environmental constraints: Functional, technical, ecological and regulatory. Elements that are outside the system and they are taken as given. The coordinated study of these constraints and their implication will assist in establishing a framework for the overall project design and guiding the necessary technical choices for the execution.

1. Root definition: Creation of the lighting Plan

C: The tourists

A: The designer

T: Change of lighting

W: Better image for the town

O: The municipality

E: The costs

2. Root definition: Application of norms for the lighting

C: The owners, the tourists

A: The authorities

T: Removal of signs and creation of new.

W: Better environment, less energy waste

O: The authorities

E: The limited number of people working and living in Ayia Napa

After the completion of the Analysis of the context it was time for action.

3.2.3 Action research

This is the main approach as a research methodology.

An action research process is not a quick remedy (Ariizumi, 2005). One of the most empowering features of action research is to enable the learner to meaningfully and comfortably evaluate their own learning so that he/she can adjust his/her way of learning to produce optimal results.

The question is: Am I a learner who is trying to learn through this project or am I a researcher who is trying to improve everyday life of people? Or is it both?

The most important aspect of the application of the Action Research approach is the continuous evaluation through drawings that is taking place.

In an initial stage the drawings for the proposal were in the form of concept and real detailed drawings that can bring a change in the environment. Detailed calculations have been made for the perfection of the proposals. This continuous trend to make my work more professional is a result of the application of the action research approach. Plan, Action and Evaluation (Ariizumi, 2005).

According to Kurt Lewin's notion of field theory, Action research approach basically holds the theoretical knowledge and practical knowledge must inform each other for the production of something new (Groat and Wang, 2001).

Jay Farbstein and Min Kantonitz propose that the researcher can still be outside of the concrete situation as he or she examines the interactive cycles of action taken.

A combined approach is used in this project. The approach of Soft Systems Methodology SSM and the action research approach.

Action research approach was the first choice because it would contribute to my learning experience. This method requires involvement in a problem situation and readiness to use the experience itself as a research object about which lessons can be learned by conscious reflection (Checkland and Scholes, 1990). To make an improvement of the situation I made a proposal that is the final product of the research project. So a direct implementation of the proposal for immediate results

and reflection upon it later is possible in this case. This is the reason why I used the action research method at a later stage. Action research method is a practitioner-based method (Mc Niff and Lomax,2003) and it will be useful for the creation of the final product. The Master Light Plan for Ayia Napa.

Action researchers make their own decisions about what is important and what should they do. This is a massive responsibility because researchers then base their decisions for action on how they understand what is good and how they think the world should be. They use their values as the basis for the action (McNiff, Lomax and Whitehead, 2004).

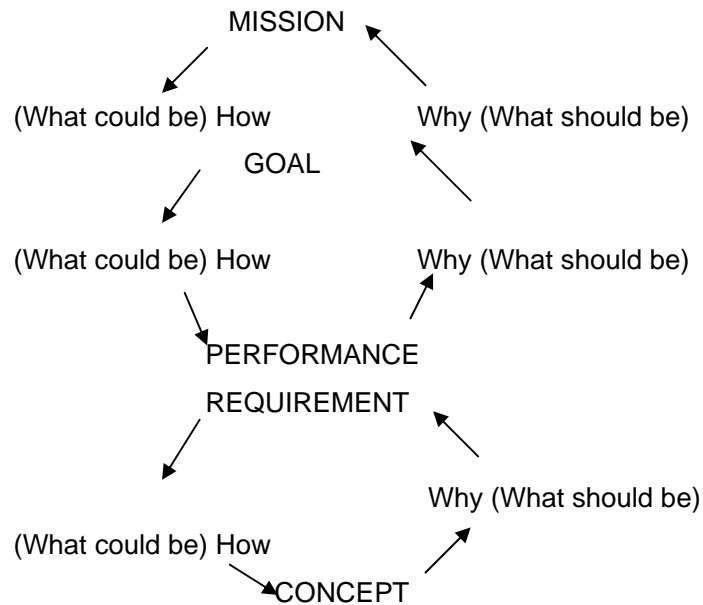
The tourist is different from the normal inhabitant of a town because he is a newcomer and sometimes subject to fraud in many aspects of the product offered to him. So is the environment of the town. The environment of a tourist place is a 'stage' where a theatre play is taking place for the pleasure of the client. The reality of Ayia Napa is being manipulated by the tourist agents through night sceneries. Cyprus can be presented as a heaven for relaxing and enjoy the hotel and its facilities or as a clubbing paradise. Not anymore as a traditional village of Cyprus.. Lighting must say the truth about Ayia Napa through a valid strategy.

3.2.4 The enquiring process

Some architects argue that 'inquiry' is a much more comfortable word than 'research' (Groat and Wang, 2002).

Since there is a situation which is regarded as problematic the aim was to find some unique features of the situation that will help me find the 'would be improvers' of the problem situation. As a designer who has been mostly motivated to improve the situation, I am fully aware of the benefits of the light in everyday life. The authorities and the municipality would be improvers since they too are leaning towards a better lighting for the tourist areas. The HOW and WHY questions in each cycle, enable the researcher to clarify the task in hierarchical fashion. On the other hand, designers do not aim to deal with questions of 'What is' but rather 'What might be', of 'How' but rather 'How could be', of 'Why', but rather 'Why should be' (See diagram below).

Cyclical model of inquiry in architectural programming



How and why questions in each cycle enable the programmer/ researcher to clarify the task in a hierarchical fashion, from mission to goal to performance. All of this leads to the figural concept (Duerk, 1993).

3.3 Rationale of the data collection techniques I am using within my research approach

3.3.1 Primary data

The analysis

Three types of analysis are important for the scope of the research.

- a. Analysis of the intervention
- b. Social system analysis
- c. Political system analysis

a. The analysis of the intervention led to the analysis of the landscape.

Definition of the scale of the terrain and its boundaries: It may be linked to one or more possible systems to a visual relation between a town and its site like Cavo Greco and to the topographic feature of the landscape. The selected scale must also take into account a number of given factors: Ownership of the ground, administration, jurisdiction for the site, extent of the space to be viewed or used, the cost and economics of the project, visual impact, etc.

Each person looks at the landscape in a different manner. A tourist vision of Cyprus as an exotic tourist destination is different than the vision of a local who knows the landscape already and recognises the elements that constitute the landscape during the day even if he does not see them clearly.

The **analysis of the landscape** contains the following:

1. **Views.** Near and far, closed and open.
2. **Planes.** Horizon line cuts.
3. **Lines.** Roads, paths, dividing lines, sea sides.
4. **Surfaces.** Edges of the beaches, edges of woods, boundaries, valleys.
5. **Screens and transparencies.** Study of the transparency of visual screens formed by trees, walls, enclosures, slopes and art works.
6. **Points of interest.** Buildings, constructions, monuments, water features, high points, position, scale forms.
7. **Topography.** Morphology of the observed landscape. Hill sides, plains, valleys, islands, elevations, forms, contour lines.
8. **Materials, colours, shadows.** Analysis of the landscape at different seasons and under different climatic conditions in order to record changes in texture and colours.
9. **The other senses.** Sensations, odours, sounds are important for the processes of analysis of the landscape.
10. **Mental presentation.** The corresponding cones of vision must be carefully recorded on the geographical maps and plans. This is useful to set up the points of reference.
11. **Nocturnal discovery.** Taking photos during the night.

b. Social system analysis means understanding the naturally occurring patterns of sociological relationships; I will do what Whyte William of the 1970's study of

urban places in New York. The behaviour will be examined. This will be done with the aid of a video camera (Whyte William, 1970).

The social system is not static and there is a continuous interaction between norms and values. Norms are translated as expressed behaviours and values as the actual performance in a role will be judged according to local standards or values (Checkland, 2000).

The lighting design concept will be created taking into consideration the age and the category of the people visiting a particular area. If for example I found out that the majority of the people using the square are young people then the guidelines for the lighting of this area will be according to the taste of the young people who are mostly influenced by the cartoons.

- c. Political system analysis** means that the politics that influence the situation have to be investigated. Understanding the politics means finding out who has the power, who is influenced by whom, who is a friend of whom etc. An aggregate of members, who have different interests. It is a power-related activity (Checkland and Scholes, 1990). Interviews were very helpful on this stage.

The Urban Planning Department plays a great role in the decision taking in the form of suggestions about the external appearance of the lighting fitting. The Electromechanical department of the government in Nicosia makes the lighting calculations and the concept of the lighting in general for the projects that are financed by the government. The engineer of the municipality gives his feedback too but the final decision is taken by government officials. Only in the case where the project is financed by a different organisation the government has no say.

3.3.2 Secondary data

a. Specialized magazines

Very important resources for my research are the specialized magazines. I underline the following data collected from the magazines:

1. Professionalism.
2. Eco-light. (Sustainable lighting).

3. Strategies for urban lighting.
4. Light and Shadow.
5. Light and colour.
6. Cases of existing lighting plans.

b. Light intensities

To understand the existing situation as part of the necessary analysis, the light intensities in the existing streets were carefully measured with the aid of a lux meter.

The luminance of the signs is readable with a luminance meter. It is essential to know how much out of the limits set by the recommendations of the C.I.E. Because a luminance meter is expensive, I asked a government department to lend me one for a short period of time. Unfortunately the response was negative so I had to use an alternative – a camera with an incorporated photometer.

c. Images

To understand the direction of the flow of people and to observe the behaviour of the tourists, I filmed a trip of an imaginative tourist like in Ulrich Brandi book 'lighting the cities'. From this video is easily understandable which places attract the tourists more than others and for obvious reasons.

d. Photos

Many photos taken from different situations and in different periods of the year. I take most of the photos during dawn so the sources of the luminaries are still visible. Moonlight shines on certain surfaces. The sky is totally dark, first in the east and then in the west. The results of the different observations will be recorded on the map.

g. Interviews

Qualitative research typically results in a large amount of data from interviews. The scope of the interviews is to listen to people's view about the context rather than coding the material and then extracting material for theory from them. Informal interviews of the tourists, the owners and the employees were very useful to understand how a tourist is passing his/her time in Ayia Napa. These open interviews gave me the chance to understand better the point of

view of the tourists and get a feeling of their preferences. A formal interview would exclude me from the chance to get the information or ideas that a person could give me.

The informal interviews were structured in a way to get the information I needed.

1. The view of the tourists about the existing lighting and the proposals.
2. The areas they like to visit.
3. Which areas they avoid and why.
4. What phenomena disturbs them the most and why.

Interviews of tourists (Two samples)

Most of the tourists did not know where the monastery is situated even if they had already spent a few days in Ayia Napa.

A couple from Belgium found that the blue light attractive and that the projectors that cause glare not so annoying.

Two girls from Malta were unaware of any monument in the area. They found the existing lighting not so disturbing and they said that after two days they did not know where was the port.

The content of the interviews of the owners (Two samples)

1. The view of the owners about the need of using so many signs.
2. Their view about the proposed solutions.
3. The connection between the signs and the philosophy of the business.

The owner of a Pizza restaurant at Nissi Avenue

The man about forty years old, assured me that he was against the position of any signs outside the restaurant. At that time his restaurant was of high prestige and it was a steak house.

With the change of his restaurant to a Pizza restaurant offering good price pizzas, he decided that the position of extra signs cannot be postponed any more. He declared that he will collaborate in the case of an official request from the

municipality to eliminate some of the signs from the facades. He has also mentioned that he was charged with a fine of 85 Euros because he put a sign on the pavement outside of his shop.

To my comment that some restaurants in Makariou Avenue do not use any signs at all and still work very well, he said that it all depends on the position. In his opinion, Makariou Avenue is more prestigious and the owner of that particular restaurant does not have to advertise special offers to catch the eye of the tourist.

The owner of a Steak house at Nissi Avenue

This owner also about forty years old believes that the signs are the number one of his marking strategy to attract the clients. Although he had a very nice garden in front of the building that reminded one of a Steak house in Arizona U.S.A, he filled the external wall with signs of any type repeating the same message many times. He declared that he is in favour of the use of the numerous signs.

Telephone interviews

Conversation with the responsible people for the lighting of municipalities that face similar problems as Ayia Napa is a valid tool for examining the social and political situation in other places of Europe. (Lido di Jesolo - Venice).

3.3.3 Case studies

Personal visits to cities

This data collection technique served for evaluation of the success of the lighting strategies Frankfurt, Milan and Berlin were among those cities visited during the night and during light festivals where many events were taking place.

The photographic material gathered was the evidence of my visits that later became part of my diary.

My personal observations were the following:

1. Most of the lighting fittings specially designed for open spaces were producing glare.
2. In the square Alexanderplatz in Berlin the lighting was not pleasant and specifically the vertical lighting fittings with fluorescent lamps for the pedestrians. These fittings are special to light the faces of the people (semi

- cylindrical). The reason why they produce glare is because the surrounding area is dark. The metal halide lamps on the other poles are also too strong.
3. During the day all the fittings are harmoniously blended with the environment.

Valid qualitative data through direct observation was gathered about the techniques used to give beautiful and interesting effects for the lighting of buildings and open spaces.

Participation to workshop for creation of light plan for the town of Rhodes at Rhodes Island – Greece

In March 2009 I had the chance to participate in the workshop with the title 'Enhancing the city.'

During the one week workshop I had the opportunity to go deeper and answer the following questions.

- How a concept for lighting strategy is developed?
- Which is the basic bibliography for the subject of lighting strategies for cities?
- How urban planning is taken into consideration during the creation of a concept for a light plan?
- Which are the tools for orienting the tourists?
- How the history of the monuments should be revealed to the visitors?

The above information was taken into consideration for the formation of a strategy for the Master plan. This workshop opened the horizons for me to enter in the wonderful world of this section of the lighting profession. Lighting the cities.

3.3.4 Strategy (fieldwork/deskwork)

Lighting design project is similar to any project of design in a sense that the designer in both cases must be able to develop a valid strategy that will lead to an artistic work using all his past experience in design. The writings of the practitioners confirm the view that there is not one route through the design process, but many.

It is always a difficulty to familiarise with the client with the concept that lies behind the project. The description of light as experienced in nature makes things easier because both the client and the designer share the same experience about light in nature. (Clausen, 2009).

The beginning of the project is the concept. The concept is the real project. The first sketches of the concept are like the first sketch of an architect or the first sketch of an urban planner. The designer, like the architect, starts from the general and moves to the detail (Quaroni, 1977).

The Master plan

This will include more detailed lighting designs for the following areas:

1. **The Nissi Avenue (The commercial strip).**
2. **The Makariou Avenue.**
3. **The clubbing area.**
4. **The Krio Nero Avenue.**
5. **The Monastery area.**
6. **The pathway.**
7. **The port.**

3.3.5 A semiotic puzzle

To demonstrate the link between the symbolic significance of a lighting fitting especially during daytime we have to examine what are the Semiotics. This is necessary for the understanding of the existence of the lighting fittings as signs.

We seem, as a species, to be driven by a desire to make meanings. Above all we are surely Homo Significans (meaning makers). According to Peirce (1931) we think only in signs. Signs take the form of words, images, sounds, odours, flavours, acts or objects, but such things have no intrinsic meaning and become signs only when we invest them with meaning. Nothing is a sign unless it is interpreted as sign.

Anything can be a sign as long as someone interprets it as 'signifying' something referring to or standing for something other than itself.

A signifier = The material from which the sign takes its meaning (The pole of the lighting fitting).

The signified = The concept it represents (The fishing boat, the sea).

The relationship between the signifier and the signified is conventional - dependent on social and cultural conventions (Saussure 1974). Reality is through attaching meanings to situations created by people

Having examined the plans of the town I was reconnecting mentally the various parts of the town. The Urban Planning Plan based on the recommendations of the Greek Planner Aggelos Demetriou suggested the connection of the commercial strip Nissi Avenue with the pathway and the beach. The formal connection during the day should be done with fittings that remind the culture of the sea. The existing lighting fitting is painted blue and it has all the formal characteristics that remind the post of a sailing boat. When this kind of lighting fitting is situated on the site of the port then the message is vanished because of the presence of the basic elements that bring the message. The fitting must 'announce' the presence of the water near it. Not dominate it. This logic is based on the fact that the fitting under examination is a fake mast of a sailing boat. When a number of these fittings are situated on a road leading to the sea or the port next to each other then the message is that at the end of the road there is an element that has all the formal characteristics of a message. The sailing boats – water.

3.3.6 The constraints.

The external constraints help finding the primary generator (Lawson, 2002). The primary generator is in other words the concept of the design.

The client's constraints are the same for any similar situation: The purchase costs and the energy consumption. The client (the municipality) is open to any new idea. A fact which makes the situation very difficult for a designer who prefers to have a 'very brief brief' than no brief at all (Lawson, 2002).

The multitude of visual information that the tourist gets is not rich in content and culture. This contributes to the rejection of all incoming information as not valid to be remembered. Murphy (1947) suggested that mental processes are bipolar, being influenced both by the external world and by inner personal needs.

For the design process three types of constraints are important: Formal, symbolic and practical (Potter 2002).

3.3.7 The Nissi Avenue.

a. The 'Route'

This is part of the analysis of the context. One important aspect of this kind of recognition is the landmark (Baroni 1998). The landmarks can be luminous signs or buildings or monuments or even squares. The landmark is a point where we have to take decision about the direction. (Lynch, 1960).

At Nissi Avenue there are no landmarks during the evening along the street. The McDonalds big sign is visible from far away and it can be used as a point of reference.

The shops along the Avenue cannot be used for orientation because they are anonymous. Sometimes they resemble each other so they confuse the tourist. The trees can be used as elements that when illuminated can offer the diversity needed to eliminate the boredom of a street deprived of visual references. The trees are without doubt unique for their form and colours. They are part of the landscape and they demonstrate the richness of the nature on the island. So they are part of the culture of the town of Ayia Napa.

Careful observation of the photos taken from a passenger's point of observation Nissi Avenue is a huge promenade where you can admire the Flora of Ayia Napa. Attention on the trees will create the diversification that is so much needed and increase the image of a town with a unique nature.

b. The formal constraints of the lighting fittings

The culture of the area is not visible during the night in the town of Ayia Napa.

The decision to give emphasis on the trees that will become landmarks influences the form of the lighting fittings. The logic is to use the light and the lighting fittings to reinforce the presence of culture in the area. This is probably the reason why some tourists are wondering why they cannot do wild parties since Ayia Napa is the right place for these activities. Why they have to respect the culture of the place when this culture is not visible anywhere? The

best cultural attraction of the town, the Ayia Napa monastery, is so carefully hidden from the eyes of the tourist. This a choice of the locals to protect the religious symbols from the foreigners?

The aim of the design of the fitting is to illuminate the plants, the cycling pathway and offer a nice visual effect. The discs hanging from the steel structure will be visible from far away in sequence and they will have different colours and finish from white to blue to gold.

c. Practical constraints of the lighting fittings

The materials

Steel for the pole and painted fiber glass for the discs.

The whole structure has to be strong against the winds thus it has to be checked by an engineer who will do the calculations.

d. The Symbolic constraints

The lighting fitting is a sign by itself during the day and during the night. It does not have a complicated form. This is good for economic reasons since it has to be reproduced in big numbers.

e. The shops

To make the picture more clear for me as a researcher, I distinguished different types of shops and restaurants.

1. 'The malls'.
2. 'The general stores'.
3. 'The souvenir shops'.
4. The shops in general.

f. The restaurants

1. 'The Green'.
2. 'The old fashioned'.
3. 'The Aegean style'.
4. 'The designer's place'.

The message to the tourist when he passes in front of a restaurant with the menu repeated so many times is that the owner is desperate to sell and that the food might be standard. The external decoration of the restaurant loses its

meaning because the façade is covered by many signs and becomes anonymous.

Direct visual observations had shown that the tourists are more attracted by the restaurants that have developed a theme that has to do with the culture of Eastern Mediterranean region.

The elimination of the many menus and signs is obligatory since they bring visual pollution and they are bad for the tourist industry and the image of the island in general.

3.3.8 Makariou Avenue

a. The 'Route'

Makariou has the advantage of having the Monastery of Ayia Napa at its end and very nice shops and restaurants. It links the ex-historic centre with the port and Nissi Avenue.

The important elements to illuminate are the trees at the entrance of the gardens next to the Monastery and the ancient aqueduct in front of the square leading to the clubbing area.

The lighting fitting

a. Formal constraints:

The lighting fitting should be integrated with the environment.

It has to have a strong element to reinforce the character of the Avenue as a high prestige street with nice shops and restaurants.

b. Symbolic constraints:

The whole design of the fitting implies that this commercial street is more of a quality than the other Avenues. In fact, the cafes and the expensive restaurants are in Makariou Avenue.

c. Practical constraints:

The weight and the volume of the fitting that is positioned in the lower part of the pole have to be taken into consideration. A pole with a fitting on its top must withstand the pressure of the wind and the static force.

3.3.9 The Port

When open places are taken under examination then it is possible to find similar constraints like in the case of the design of the special lighting fittings for streets.

a. The 'Route'

The first monument that is visible when someone enters the area is the small white church on the right. The port is the eye towards the open sea and the view to the rock of Cavo Greco. The port hosts the local festivities and the locals are feeling like home. It is the only place of the town where twice a year local merchants are coming to sell their products under the tents.

b. Formal constraints

The presence of anonymous buildings used as restaurants is reducing the beauty of the place.

c. Symbolic constraints

The area is an original and vivid place not touched by the frenetic trend of making money.

d. Practical constraints

The rest of the route is full of lighting fittings and structures that are too numerous for an area like this.

The lighting fitting

a. Formal constraints

The height of the fitting must not be very high and it has to be flexible to allow the use of many types of optics for different purposes.

b. Symbolic constraints

The form of the lighting fitting has to be simple and it has to have elements that remind the life of the port. The fishing boats, the sea etc. The culture of the

Cypriots is visible through the forms and inhibit messages of the lighting fittings.

c. Practical constraints

The fitting must visually fit with the surrounding environment.

3.3.10 The Monastery area

a. The 'Route'

In a summer evening the crowd of tourists from the direction of Nissi Avenue passes in front of the trees at the entrance of the garden surrounding the Monastery. The next land mark is the old square of Ayia Napa with the artists in one part and the walls of the Monastery on the other. The crowd continues towards the clubbing area. The square of the monastery adjacent to the clubbing area is only partly used as the old square. It is the connection of Makariou Avenue with the clubbing area.

b. Formal constraints

The area is full of trees and plants. This contributes to the disappearance of the monument and to the disorientation of the visitor. The modern water basin in the centre of the garden is out of proportion. It is too big and it is situated in the middle of the garden/square in front of the new Orthodox church in the background. This space was supposed to be a square but with the presence of too much elements it has lost its identity. It seems that the Cypriots do not like open spaces very much.

The square/garden next to the monastery will be treated as a corridor leading to the monastery. It will be part of the route. The water basin will be treated as an eye catcher to attract people from the street to visit the place. The colour blue will be used for this purpose. Many trees must be kept almost in shade so the route towards the monastery will be clear.

c. Symbolic constraints

The area of the Monastery is a monument and it is the only place in the town with its original identity. It is like a fortress with the historic treasures enclosed within the perimeter of the old building. The Greek Orthodox monuments in

Ayia Napa remain almost hidden from the eyes of the tourists and they need to be given the right emphasis.

d. Practical constraints

The flow of the tourists is directed towards the clubbing area because it is the more natural and direct route. Not many tourists will divert and head towards the square garden and then pass through the monastery and then again in the old square. This is a unique experience of a route full of shade and light and usually the more romantic couples visit the place. This is an historic route.

3.3.1.1 The Clubbing area:

a. The 'Route'

After an exciting journey through the marvellous world of Venetian Ayia Napa the tourist enters in the area of 'fun'. Spectacular coloured lights everywhere, loud music and people trying to sell tickets for the various clubs having a video on the back showing what it will follow if someone buys the ticket. The existing out of place lighting fittings which resemble the masts of the sailing boats had their optics sprayed with black paint to stop them spreading the wrong light that does not match with the existing frenetic atmosphere.

b. Formal constraints

The luminous signs of the clubs are artistically better than the signs of the shops and the restaurants in the commercial area. I consider that it is good to keep them and replace the existing lighting fittings with LED lamps fixed on opposite walls.

c. Symbolic constraints

The LED lamps will be more integrated in the environment of the clubbing area and will give a more integrated solution that is so much needed in this case.

d. Practical constraints

The owners of the buildings have to give their permission to fix the wires on their property.

3.3.1.2 The Pathway

a. The 'Route'

When the sun sets there is a spectacle of vivid colours in the sky. A walk in the darkness is an unforgettable experience. The stars in the sky (if there is no light glow) the light of the moon falling on the sea water, the waves and the small blue light of the fishing boats far away in the horizon moving slowly going back to the harbour.

This is part of the experience of the tourist who escapes from the vivid life of the commercial strip to enjoy the silence of the place.

The fact is that only a few couples feel safe to walk along the beach during the evening or even swim during the evening. They prefer walk along the pathway where they feel safer.

a. Formal constraints

The lighting fitting must be of low height (one meter maximum). The reason for that is the need to protect the environment from high structures that will obscure the view from the beauties of the sky vault.

b. Symbolic constraints

This area is sensitive. That is why the fittings must send this message and fully integrated with the environment. During the day they must be hidden from direct observation by their shape. The shape of sphere is the best for the purpose. The light coming out of the holes will give a 'romantic' atmosphere to the place.

c. Practical constraints

The light emitted from the 'sphere' will illuminate only parts of the landscape. The reason for that is the necessity to leave parts in shade for the animals to hide from their predators. The stripes of light will leave great part of the landscape visible. This is a different way of 'seeing' the scenery and protect the nature at the same time.

3.3.13 The Krio Nero Avenue

a. The 'Route'

This Avenue is at the far end of the routes. The visitors of this street are mostly tourists who stay at the hotels nearby. From Krio Nero Avenue one can go to the Marine museum and to Makariou Avenue or to the Port.

b. Formal constraints

The area is full of palm trees and this is the main characteristic of the place. There are not so many shops but mostly cosy restaurants. There is also a Pedestrian way to protect the pedestrians from the cars entering the town from the direction of Cavo Greco.

c. Symbolic constraints

The Avenue reminds a typical street of South Mediterranean region or an American Boulevard in California.

d. Practical constraints

The lighting of the Palm trees must be done not to cause light pollution.

1. Methods of data analysis

The following data are analysed:

1. Articles about lighting
2. Books
3. Existing projects
4. Phenomena of lighting/Diary

3.4.1 Articles about lighting

The theory about light is generally known and to say something new about the subject, someone needs to prove it first. Light and colour is related to social science, physics, art, history of art and architecture, design, urban planning and engineering. When an article is relevant to the subject of lighting design the following facts are being examined.

- a. Who is the author?
- b. Who published it?
- c. Are the facts reliable?
- d. What is the purpose of writing the article?
- e. What are the motivations of the author?

The specialized magazines in general do not give the permission to anyone to publish an article unless this person is someone who can write and prove his knowledge.

The articles are divided into the following categories:

- 1. Professionalism.
- 2. Eco-light.
- 3. Light of cities.
- 4. Light and green.
- 5. Light plans.
- 6. Theory of light.
- 7. Software of light.
- 8. Methodology.

Care was taken so that the data collected is practical for enriching my knowledge about light. A selection of the articles was used for the research project. The bibliographies, the work experiences and the know-how of other peers are considered as valid data.

3.4.2 Phenomena of light/ Diary

These data are unquestionable sources of knowledge. Perhaps the most important and undisputable of all the data related to the field.

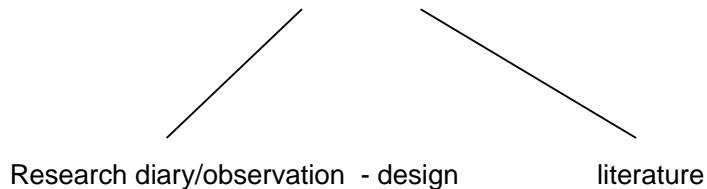
Some of the data available in everyday life are the following:

- 2. Accidental play of light passing through a surface with 'masks'. For example the artificial. Light that is coming from the showroom of a shop that has stripes of mad transparent material. The beautiful effect is visible on a wall nearby.
- 3. Light effects from a theatrical performance.

4. Existing or temporary lighting installations. From visits to open or interior spaces from other cities abroad or from shows organised during a 'fete lumiere' (festival of light) of a city that is hosting such an event.

3.4.3 Triangulation/Validity/Reliability

Empirical data (Non theoretical based on practical tests and experiences. Not ideas).



The presentation of my work to peers to the authorities and to researchers abroad is the most important act of triangulation.

The idea of triangulation is not to prove but to question and explore. (Seminar of Bellamy, 2008). This is nearer to the interpretative - constructivist paradigm according to which the assumption is that the knowledge is interpreted through the researcher's understanding of the subject who produce it (Hoffmann, 1994). The major goal of this paradigm is to describe and explain the social interactions, not to generalize findings (Stevenson, 1993). Also to encourage people to change the way they think about what they are doing, rather than suggest ways in which they can and should change what they are doing.

The lighting design concept is checked constantly through the existing literature consisting of books, articles and seminars about lighting design. The presentation of the concept of each area of the project depends from the artistic abilities of the designer to represent the whole idea. It is further checked through the feedback of the people involved in the industry, the peers and the people of C.T.O.

It is also re-examined by the designer himself who relying on his experience is able to improve the designs according to his mature eye.

3.4.4. Ethics

The American lighting designer Branston in his book 'Learning to see' stresses the necessity to be accountable, to take responsibility both personally and professionally

and be first accountable to ourselves. The designer has to add in his database when he has a new experience. The designer is responsible in providing creativity. This is a big ethical issue.

The designer must never rely on ready - made images or try to copy solutions given for situations in different context or copy designs of lighting fittings of other professionals. At the end of the day this kind of project is destined to failure. The photos of people should not be published in internet. This is a way to protect the privacy of the persons appeared accidentally. During interviews the names of the people interviewed are not documented.

How my subjects have been treated.

1. They were treated with the least risk (Their physical and mental health was not put into any kind of danger).
2. Subjects are participating after their agreed consent after they have been fully briefed about the procedures voluntarily, and they are free to withdraw if they so wish.
3. Subjects have the right of their personal data to be protected.

(Free to participate, anonymity, full update before and after research).

The Ethical Issues of the Project

The main ethical issue which had to be considered was the aim of compromising the protection of the interests of the researcher, with the protection of the interests of the project constituents. Namely the interests of:

1. People involved in financial activities within the wider industry of tourism.
2. The indigenous population.
3. The municipality and
4. The tourists

1. The concerns of the owners of the local enterprises have to be taken seriously by the lighting designer.

One reason is that these people have invested in this area of business that creates income and growth of the local and national economy. Another reason is that these people are also family people.

Reasonable and well thought recommendations will improve the built environment of Ayia Napa and will help the tourists make their choices without being bombarded by the numerous signs. The interests of the owners will be safeguarded in a more balanced antagonism between them.

After careful consideration of the personal views of the owners the recommendations to reduce (not completely eliminate) the visual chaos have been formulated. The measures in a first phase are not drastic but very important to change the situation for the better. A change cannot come from one day to the other but gradually.

2. The strengthening of the Cypriot culture in the areas where locals and Cypriots in general still visit means that the Cypriots are not excluded by their rights to visit and use the space for entertainment and festivities. The tourists will also be benefited because they will be happy to know the true Ayia Napa. The designer must act ethically to make the above a reality.

The area of the port and Makariou Avenue are used by the locals throughout the year and during festivities. The aim of the Light plan is to make Ayia Napa a livable place for all and not only for the tourists.

3. The designer must be objective and free from any thoughts that the municipality is a client that must be satisfied fully. Any deviations from a good practice are considered as unethical.

In fact no changes were made just for the reason that some people from the authorities might have a different opinion without any justification.

4. Ayia Napa of today has risked losing its identity totally because of the mentality that everything should serve the hypothetical desires of the tourist.

The tourists have the right to see and live a space in its own local atmosphere and spirit not be presented with something fake. My ethical responsibility was to

unveil the originality of a place. The focus of the Light Plan on the trees, plans and the history of Cyprus is a proof of the above.

Chapter 4 - Project activity

Introduction

The purpose of this chapter is to discuss the processes of conducting the research as well as the content.

It is divided into the following subjects:

The profession of the designer. The beginning.

The research methodologies and the 'Euroqual' convention in London.

The problems.

The data and the analysis of the landscape.

The technical drawings and the proposals.

The lighting fittings.

The costs and the energy consumption.

The presentation techniques.

4.1 The profession of the designer: The beginning of the story

In the book 'How designers think' Lawson emphasizes the importance of the designer to have rich and different experiences, even different from his world as a designer Lawson (2000). The designer must have a 'feminine' brain; feminine brain in a sense that the brain is able to give birth to new ideas.

The dilemma of a designer of which methodology he/she has to apply when he has to provide a solution to a particular situation does not really exist. The designer has to do whatever he feels to do without any limitations. This is the paradox of a designer who is a professional and wants to apply a specific methodology. The ideas of the designer are the result of previous experiences and they are 'appearing' suddenly depending from his personality, state of mind and the good luck to have the right people around. The more you have seen, experienced and absorbed, the more points of reference you will have to help you decide which direction to take.

4.1.1 The beginning

This project started in 2007. The engineer of the municipality of Ayia Napa is a stakeholder and my consultant is a lighting designer from Finland.

At the very beginning I started to take photos of Ayia Napa during the night and during the day in a sporadic way trying to discover the most important features of the place. It was very confusing because there was an excess of light everywhere. The problems of the town were evident but it was not possible to classify them visually. The classification of the landscape according to Narboni's indications was not showing the road to the solution.

It was very confusing at the beginning not knowing how it was possible to conduct any kind of research related to lighting design. I asked myself how it is possible to do any kind of research since the design process is unpredictable. The book of Groat and Wang 'Architectural Research Methods' was extremely helpful to eliminate my doubts and open for me the world of research in design.

The first drawings were indecisive renderings with the aid of a program. Professional studios of lighting design have realised that using software programs for rendering is time consuming and it does not give a reliable presentation of the proposal. Speirs and Major London based studio is using complicated hand sketches made with white pen on a black paper. The experience of the designer is vital at this phase of the project. The designer must know the laws of physics and apply them in order to reduce the risks of miscalculations. My consultant was a bit disappointed at the beginning. The close collaboration with my consultant was when I was trying to design a lighting fitting. For example, the process of testing the illuminance that goes towards the sky using simple software was clear to me and this is a valid information that is not found in the books.

The process of designing the Light Plan for a tourist town like Ayia Napa is a painful but creative activity. Long hours of work are needed, a lot of reading and continuous contact with the consultant who is an experienced designer was necessary. He has already sent me examples of his work to see how he presents his proposals to his clients.

With the discovery of new books like the 'Guida alla Progettazione Stradale e Urbana' di Mario Bonomo my method of work is enriched and improved. The presentations of my proposals are improving also so as the narration of lighting situations. Now I 'see' more clearly than other people who do not have the opportunity to 'see' properly as a designer is 'seeing' (Brandston, 2008).

This continuous reflection on my work and revaluation is a way to triangulate my work. A continuous improvement of the output of my work is guaranteed (Groat and Wang, 2000).

The main difficulty of the project is the lack of interesting and historical buildings that could define the real image of a town. The Ayia Napa Monastery is hidden behind the green and the trees. The Cypriots love hiding their buildings behind trees and they also love planting everywhere. Almost all the rest of the construction that defines a street is anonymous and temporary. These structures that have replaced the old houses that were representing the true Ayia Napa village and the temporary buildings that are now used for pubs, shops, restaurants etc, are in a continuous mutation. This is a great obstacle for me since the non defined continuous systems (Terzi 2006) and links would lead me to the final solution of the light plan.

After reflecting on some informal interviews of the tourists I realised that it is a mistake to propose a light atmosphere that does not satisfy the needs of the tourists and go along with the culture of the local people only. Fun is the key word for holidays and the lighting should be in accordance with the expectations of the visitors (in this case the tourists). The majority of the tourists interviewed stated that they had no problem with the lighting of the streets or the glare created by some projectors. They link the excess of light and the blue light with the 'Mediterranean' feeling of the place. Taking this fact into consideration, energy saving solutions were prepared. New special lighting fittings will mark the landscape and give an identity to the place. Dynamic structures will dominate the lighting of the commercial streets and they will give a character to the space. To save money the existing wiring on the pavement will be used as Brandi recommends in his book 'light for Cities', (Brandi, 2006).

According to the book 'Light and Communication' of Clausen narration is used to describe the strategy of the lighting design as a combination of light and emotion.

This is the essence of a good lighting design.

4.1.2 The workshop for the lighting strategy of the city of Rhodes Island

A decisive part of my research was my participation at the workshop about the creation of a Master Light Plan for the island of Rhodes. The workshop was under

the direction of a Portuguese architect and lighting designer Coelho. She gave us the opportunity to link urban planning theories within lighting design practice. She also mentioned the book of Kevin Lynch 'The image of a city' that is considered fundamental for the study of urban environment. The difference between a normal inhabitant and a tourist is very big so some of the theories of Mr Kevin cannot apply here. The book was useful on dividing the town in quarters and identifying the gaps between the different areas. Professor Coelho was insisting very much on graphics, the key words used and the strategy to follow. The word lighting strategy rather than concept for lighting was used during the workshop. In fact, a work without a meaning is not an art. This is phrase of the director of the famous innovative circus 'Cirque du Soleil' (BBC interview July 2010).

4.1.3 Presentation drawings as opposed to production drawings

The client no longer buys the finished product but rather a set of drawings. I have experienced myself this true fact. My clients were more impressed by my hand drawings than from my technical ones. The lighting designer has to have an artistic background so he will be able to show the real effect of the light as he has it impressed in his mind. The computer simulations do not give the correct image of the proposal. The client expects something more than a project with lights. The lighting designer wants to create a piece of work to show to perspective clients and to satisfy his client's needs at the same time.

The use of black paper and white pencils is used broadly by the lighting designers of Europe, especially in the countries with tradition in art. There is an appreciation for the handmade drawing made by the designer. The designer is an artist and he must handle the chiaroscuro (the rich variations of shade and light).

4.2 The research methodologies and the 'Euroqual' convention in London

The methodology followed is greatly influenced by the writings of Lawson (How designers think, 2002) about the constraints that influence the process of design. The most important constraints for the lighting design of particular areas or even the design of lighting fittings are the following:

- a) Symbolic
- b) Formal

c) Practical

By analysing each constraint for each case I was able to find the beginning of a concept. The concept is of course a process that belongs to the creative world. In my opinion if a designer does not determine these particular types of constraints at first is navigating without any particular destination. Unless he/she has a different way of determining the points that will generate the concept.

Initially it was not clear whether Action research method is applied in the case of a Master Light Plan. Later on, I discovered that the creation of a solution and afterwards the continuous re-examination of the drawings is essential for the production of real professional work. Many times I test the results by applying the more extreme solution. That gives me the opportunity to measure the distance between a solution that is applicable and an exaggerated solution that is just a fantasy. This is my personal tool of testing my work and is developed during the years of my experience in design. As the famous Italian architect Aldo Rossi would say: 'I stop drawing until there is nothing more to say.'

Action research methodology is a reflection in action it denotes the actual need in the professions to solve problems arising out of practical life contexts (Groat and Wang, 2002).

A more focused version of action research is 'design-decision research' proposed by the architects Farkstein and Kantrowitz for the design of a bank building. The researchers are players in the process. In this sense researchers and designers are one community. Informal interviews of the public revealed that the strategy of the design of the building should take a different direction.

The design of special lighting fittings is very important for the change of the nocturnal environment of the two main avenues of Ayia Napa. A strong and successful lighting fitting will bring the change that I am seeking. It is the tool, and may be the only tool available to give a character to an anonymous environment.

Probably the whole project is an excuse to design new objects that are visible during the day and illuminate the town during the night. The whole approach of the designer and his interpretation of the various problems is his signature on the space

of intervention. Personally it took me a long time to design a lighting fitting that is a piece of design fully integrated in the context.

4.2.1 The 'Euroqual' convention London May 2010

The pressure to make a good presentation had a positive effect on me. A week before my departure for London I had no idea of how to propose an alternative to the owners of the restaurants, shops etc. for the improvement of the visual chaos without creating an outrage of the owners. Three days later I came with more precise ideas on how to eliminate many unnecessary lighting fittings under a set of rules that will be possible to follow for each different case. The philosophy of the proposal was that the final result should be practical and creative at the same time. The result should be visually pleasant and trigger the imagination. The repetition and the reduction of the size were the key words.

The convention on qualitative research methodologies was divided into various sections. The lighting of Ayia Napa was dedicated to research work related to the space. This was a great experience to understand how the researchers work. I heard researchers explain their work before. This time was different in a sense that the speakers explained their work in detail and in a very simple way. The qualitative research practice has been finally demystified.

After the presentation it was obvious for me that my research was in the right path because of the acceptance of my methodology from the part of the audience. The difference between my presentation and the other speakers was that It was summative and the other researchers more prescriptive. This was a sort of triangulation.

4.3. The problems

Activities linked to problems.

The application of the Soft Systems Methodology (S.S.M) had contributed to the listing of the problems.

| Problem owners | Problems | How to solve them |
|--|--|---|
| Tourists | Bad night environment due to the lack of light plan | By designing new lighting fittings |
| Municipality + Tourists | Light pollution on the beaches created by the hotel owners | By properly designing the lighting for the seashores and recommend restrictions. |
| Tourists + Police+ Municipality | Lack of safety due to darkness | By applying a correct light plan that will take into account the shadow – light interplay and definition of risky areas. |
| Tourists+Municipality | Small monuments and strong elements of the landscape are hidden during the night | By putting in focus all the important monuments and strong elements of the landscape |
| Tourists+Municipality+Local tourists | No provision for different light for winter and summer periods | By creating various light sceneries for winter and summer |
| Tourists+Municipality+Local tourists | No lighting on the harbour during winter | By including the area in the night plan for winter period |
| Tourists+Municipality+Local tourists+ Church of Cyprus | No correct lighting for the monastery of Ayia Napa | By studying a plan for this particular area |
| Shop owners+ Tourists+ Municipality | The lighting of the commercial streets needs improvement | By proposing a light plan for the commercial streets that will boost the sales and at the same time will upgrade the visual comfort |
| Shop owners+ Tourists+ Municipality | Bad lighting solutions for the parks, streets and other public areas. | By studying a light design plan for this particular area and establishing routes. |

The problems are taken into consideration and the solutions to the problems are given in the form of design solutions.

4.4 The visual chaos

The current economic crisis and the stress of the owners is visible from the excessive number of the signs and the percentage of the area covered by the merchandise on the pavement. One owner told me that when his restaurant that now is a pizza restaurant was a high prestige steakhouse he was strongly against

the presence of any signs outside his shop. When he changed the character of the restaurant he had to give more emphasis on the reduction of the price. For him the signs became essential to attract the client.

The mass media is giving a bad image of Ayia Napa inside and outside Cyprus as a place without culture and where drunken people are mixing with the tourists and creating trouble to the police. I believe that a town with regulations on lighting and a proper nightscape will give the impression to the visitors of a place with culture proud of its past and its organisation.

4. 5 The data and the analysis of the landscape

The town of Ayia Napa is spread on a hill but the skyline of the town is not visible from the main streets and squares. The points from where someone can appreciate the natural landscape of Ayia Napa is from the higher part of the constructed area when he/she drives with the car taking the road that connects the town with the highway.

The photos were taken from the main points of observation from a relatively close point of view since there are no large open spaces in the town environment.

4.5.1 The diary

My first encounter with the concept of collecting data for a diary was in 2005 when my professor Mr Terzi asked his students during the Masters course in lighting to start creating a diary of photos during the summer holidays. This diary is a valid tool for the designer so he can enrich his 'library' of images stored in his brain.

During this research I enriched the content of the diary with photos of the different areas in different time and period of year. Comparing the photos taken during the evening in summer and in winter the former look clearer than the latter. Especially the photos next to the beach are affected mostly. The colours of the sky appear darker in winter and this affects the whole atmosphere that is the background of the image. The play of shadow and light is found in every phenomenon of light revealed by the photos. I discovered that shadow can play a major role even in the lighting of open spaces. In the cast of the open space near the small church I used the play of

shadows and light to transfer the building during the night away from its context. A religious place needs to be a bit isolated from commercial activities.

Observing the sky of the area especially during winter is very educating for the designer. The light penetrating the thin layer of clouds creates a composition of colours of various hues and nuances.

4.5.2 The maps

The maps collected from the urban planning department and from the government offices were very useful for having a detailed picture of the real situation. In the case of the Port I had to combine different maps together and even use the Google – earth to have a complete picture of the whole area (www.google.com).

4.5.3 The colours

The colours of the landscape vary during the various periods of the year. The green colour of the fields is changing from yellow green in the summer to green in the winter. The most significant plants are those spread along the Nissi Avenue and the trees that most of them keep their colour throughout the year.

The colours of the buildings are mostly variations of grey and white. In general the colours of the buildings are colourless. This is the reason why the blue colour and cool white are the most appropriate for the buildings of the town. The above colours show grey and white surfaces very well. The signs have different kind of colours and the trees have their own colour which is mostly a variation of green.

The areas of the intervention have been visited many times during the year and I can say that there is not much difference in colours during the winter and summer.

During winter the number of people is changing and the light coming from the shops is much less.

4.5.4 The photos

Panoramic photos of part of Nissi and Makariou Avenues reveal the plurality and the discontinuity of the built environment.

Makariou Avenue is more cosmopolitan than Nissi Avenue which is much longer. Makariou is extending until the gardens of Ayia Napa monastery on one end and on its other end is the port area. Nissi Avenue has big shopping buildings and very near is the Luna Park with the two luminous towers that are visible from far away. Many palm trees are present along the street.

The panoramic view of the two avenues was created by using many photos put together next to each other during the day. This is a more 'architectural' way of looking at the context.

Another series of photos was taken in the evening simulating the root of a passenger starting from a point at Nissi Avenue proceeding to Makariou Avenue, arriving at the gardens of the monastery and going back to the start again. These photos revealed that part of Makariou Avenue towards the port is illuminated with the same yellow light of sodium as the old lighting fittings. The atmosphere created by the yellow colour lamp is not the right one for the creation of the right atmosphere right for entertainment.

The following experience helped me find a solution to the problem. While I was taking a photo outside a Chinese restaurant under the yellow light of the sodium lamp, I noticed that the colour on the pavement was magenta. The magenta colour was the outcome of the colour mixing created by two lighting sources. The yellow colour of the High Pressure Sodium lamp (HPS) of the lamp that illuminates the street and the blue colour of the fluorescent linear lamps of colour blue hanged on the walls of the restaurant. So the new lighting fittings that will be fixed next to the newly positioned posts with Sodium lamps will create the same effect as outside the Chinese restaurant. The faces of the people passing by were illuminated by a vivid colour light appropriate for such events as a pleasant evening in summer.

4.5.5 The trees

The informal interviews of the tourists revealed that the presence of the trees in front of the Ayia Napa monastery hides the most important monument of the area. In fact the informal interviews with the tourists showed that many of them left Ayia Napa without knowing that the monastery exists!

The trees are important cultural elements that show the richness of the nature of Cyprus. On the other hand they must be planted following a certain logic. To transplant some trees would be a solution to the problem.

4.6 The technical drawings and the proposals

The proposal covers the areas of the Port, the Nissi Avenue, the Makariou Avenue and the pathway along the beach.

The pathway along the aqueduct and the green area near them must be physically connected with the network of the other pathways. The Krio Nero Avenue must be connected with the rest of the streets with new lighting fittings. These fittings can be provided by the Urban Planning Department as happened with Makariou Avenue. The intervention can be similar to that for Nissi Avenue since the design of the two streets is similar.

The link of lighting design for cities with urban planning has influenced the way that the maps used for the analysis of the existing lighting of a city are very similar to the maps used for urban planning. The uses of the land, the classification of the roads, the connections between the various parts of the town have to be analysed and presented on a map in both urban planning and lighting for a town. So the creator of a Master Light Plan has to have a good background of architecture and urban planning. The master plan must contain a certain number of documents. There is no formula for a successful master plan. It is a result of an intuitive and creative work. (Brandi 2006).

The maps created are found in the document accompanying this text:

- A1. Nocturnal discovery
- A2. Views
- A3. Cones of vision
- A4. Limits of the municipality
- A5. Area of intervention
- A6. Existing lighting fittings
- A7. Road categories
- A8. Pedestrian movement
- A9. Uses of land
- A10. Roads and Routes

A11. Existing light intensities

A12. Concept

A13. Proposed lighting

A1. Nocturnal discovery

This document is a panorama of images. The aim is to give a global and immediate recognition of the nightscape of the area of intervention. The spots from where the photos were taken are indicated on the map. The importance of this map is that it is possible to compare the various colour temperatures in existence and see that the yellow light of Sodium light prevails in the nightscape.

The map of nocturnal discovery is a mosaic of images. It is impressive that in the case where under the sun light the scenery is not interesting under the 'designed' artificial light is possible to change the space totally.

A2. The views

A view seen under the day light cannot be manipulated by the designer. In the case of a built environment only the bulldozers and few talented architects with the collaboration of an urban planner and other specialists can transform the environment. The social and economic impacts have to be taken into serious consideration.

A view perceived under the artificial light can be manipulated by the designer and presented to the observer with the expense starting from a few Euros to hundreds or thousands. There is no need of bulldozers or rebuilding any structures. The darkness is a strong tool in the hands of the designer. This tool can disappear anything during the night. This is another proof of the importance of the 'designed' artificial light into our everyday lives.

The views during the evening are mostly taken from the streets. The angle of observation is mostly narrow about 30 degrees. The position of the observer varies from a few meters to a maximum of tens of meters. The only exception is the Nissi Avenue where the view can be hundreds of meters long. It is interesting to observe that the number of views during the day is much less numerically than the respective views of the evening. The reason is that the views during the day are 'fixed' under the sun. When the sun sets everything is seen under the mystery of the night. The angle of the observation during the day is much wider than during the evening where

a selective perception is taking place. During the day more elements are included in the cone of vision.

The number of the interesting views during the day is 22 when the views during the night are about 30. So the relationship between the day and the night views is that the views of the day are about 10 percent less. This is an indication that during the night artificial light can influence the context and make it more interesting.

A3. Cones of vision

The map of the nightscape has also cones of vision that follow the points of observation. This is only to indicate the direction from where the photo was taken.

In this map the most important cones of vision are indicated. The scope of this map is to indicate the angle of the cone of vision in conjunction with the landscape. In small Cypriot towns like Ayia Napa the cones of vision are wide only when the observer looks at the direction of the sea. The same happens when he/she stands on the beach or on the hill that looks the town from above. This is also due to the presence of the trees that some cases block the view.

A4. The limits of the municipality

The limits of the municipality of Ayia Napa are extended from the Ayia Thekla beach to the Konnos beach. This is vast area which includes the Cavo Greco area, the caves along the road to Protaras, a small forest, monuments like churches and many beautiful beaches.

A5. Area of intervention

The area of intervention is limited to the whole of the built area and the area that includes the entire Krio Nero Avenue to the west and half of the Nissi Avenue to the east. The port and the pathway to the south are important part of the project.

A6. Existing lighting fittings

The aesthetics of the lighting fittings has nothing to do with the context. The lighting fittings were chosen according to the availability of the stock of the Electricity Authority of Cyprus. The old ones were installed on wooden poles then more modern poles were added preventing the light emission above 90 degrees.

Within the built area the existing poles that look like the masts of the sailing boats painted blue are eluding the presence of the fishing boats and the blue colour of the

sea. Apparently the symbolic connection is not culturally strong for the purpose. These poles are even installed in the clubbing area. These fittings must be removed in the area between Nissi Avenue and the beach also due to deterioration. Any lighting fittings resembling like the masts of the sailing boats must be situated towards the sea 'announcing' the presence of the sea water. They should not be within the area where an activity related to the sea is taking place.

The latest addition is installation of the poles and the lighting fittings in Makariou Avenue and in a part of Nissi Avenue. They are well designed fittings for urban areas and they could fit in any commercial street of the world. At Makariou Avenue they illuminate the asphalt only.

The illumination of the street strictly for safety purposes does not fit a solution for the visual problems of the area. Additional fittings must be installed for this purpose. For economic reasons the replacement of the existing poles is out of question. On the other hand its out of my power to stop the authorities to replace the existing poles with new ones. The municipality cannot afford the costs of the purchase and installation of so many poles for street lighting so it can invest on the complementary lighting to illuminate the rest of the space next to the asphalt.

A7. Road categories

According to the European directive CIE136-2000 the roads with heavy night time use by the pedestrians or pedal cyclists is rated as P2. That means that 10 lx average illuminance and minimum of 3 lx. These values are only indicative and are related to the area covered by the asphalt. The project is dealing only for the areas not covered by the existing lighting. The Urban Planning department and the E.M.S. (Electromechanical Services department) are designing the lighting of the streets using always the high Sodium lamp which has a yellow colour whiter than the old low pressure sodium lamps.

The network of the pathways extends along the main roads. The length of the cycling paths looks satisfactory.

A8. Uses of land

The social problems that are visible from this map are the following.

1. The presence of the hotel apartments near the clubbing area is a serious problem for those who live there and are not interested in clubbing.

2. Many hotels are situated near noisy streets.
3. The commercial streets are also service roads.
4. There is no access to the beach from Nissi Avenue.

The Light Plan along with the Urban plan can offer drastic solutions to the last two problems as it is mentioned in the respective reports for the strategies for the lighting of these areas.

A9. Roads and routes

This map shows the extension of the existing network of routes for the pedestrians in connection with the road system.

A10. Existing light intensities

The highest the illuminance levels in a street the more adequate for social uses the atmosphere becomes. All the streets of Ayia Napa still have a yellow Sodium light, Sodium yellow light has the characteristic to 'spread' in the space so it gives the average illuminance that the engineers were looking for. The lighting of the streets aims to illuminate the cars but not the pedestrians.

The commercial avenues (Nissi and Makariou and Krio Nero) have an average of 40 lx when the service roads have 20 lxs.

The road connecting the built area with the highways is more illuminated (70lx average). The reason is that when the lighting installation is new, the yellow colour becomes whiter because of the high pressure sodium lamp and the level of illuminance increases because the new fittings are more efficient.

The new installation of Makariou Avenue has an average illuminance of 70 lx instead of 40 lx that had before. According to the directive of C.I.E. (International Commission on Illumination) CIE 136 -2000 the Horizontal illuminance for type P2 road for heavy night time use by pedestrians or pedal cyclists has to be between 10lx.

A11. Concept

The concept is explained in a diagrammatic way showing the attempt to reunite the various parts of the town.

A12. Proposed lighting

This map is directly connected to the map of the strategy of the light plan. The nodes at connect the various parts of the town together are illuminated in a different way than the rest. More light, higher Kelvin degrees (The colour temperature is measured in Kelvin. More Kelvin means more cool light.

The clubbing area will have blue led that will match with the activities of the area. The blue and white led will alternate. The white will be on during the winter and the blue light on during the summer.

The residential areas will be illuminated with high pressure sodium lamps. The yellow light of this lamp reminds me the old neighbourhoods of villages. This is the reason why I have chosen the old style warm light.

The node near Tefkrou Anthia Street connects the street with Makariou Avenue. For the port, the pathway, the path to the aqueduct and the monastery areas specially designed fittings will be used and the light intensities and temperatures will vary according to the strategy of the designer.

A13. Traffic of people

The volume of people waking in the streets is based on direct observation. The result shows the float of people to understand the importance of each area according to the concentration of the; crowds;

4.7 The lighting fittings

Kevin Lynch wants to address public imageability that is experiences of a city's image that hold true for a community of people (Groat and Wang, 2002).

So what is the public imageability for the town of Ayia Napa? What would a film director find interesting to shoot for a documentary film of Ayia Napa? In my opinion the trees and the landscape represent the beauty of the place. The monastery of Ayia Napa is the only monument of exceptional cultural value. The metallic windmills used to influence the landscape of the area but now they are limited in number. The buildings of the town do not have any cultural value. The hotels could have given a character in the area but unfortunately they are all anonymous. Only those hotels

next to the beach can offer their vertical surfaces for lighting effects because they are visible from the port.

The genesis of the lighting fittings.

4.7.1 The lighting fitting for Makariou Avenue

The existing poles are situated on the dividing line between the plots. They do not obstruct the view from the interior of the buildings do not leave any space for additional poles. The additional fittings have to be placed in front of them.

In the case of Makariou Avenue the authorities changed the lighting fittings (this happened when the research project had already started) and there is no space left for additional fittings. The philosophy of the proposal was to give the Avenue a prestigious character. The big cylindrical fittings could not be fixed on the poles themselves for static reasons so I have decided to position additional poles next to the existing pole in the other part of the pavement so it does not block the circulation of the pedestrians.

4.7.2 The lighting fittings of Nissi Avenue

The palm trees are tall trees arriving at 10 meters of height. The lighting design proposes the creation of a structure that embraces the tree on the higher part of it just under the leaves. The nearer the source of light the smaller the source and bigger the energy saving. This solution does not create light pollution as a ground recessed luminary. The leaves of the tree will be illuminated without consuming a lot of energy and polluting the sky with light.

4.7.3 All in one. The fitting for the plantings along the cycling pathway

The part of the road separating the asphalt from the cycling path is covered with flowers. The need to give emphasis to this and illuminate the cycling way next to it as part of the general concept was the decisive fact for the creation of a light structure above it. The structures at the end of the linear flowerbed hold a lighting fitting special for pathways. The linear lighting fitting above the flower bed in the middle illuminates both the flowers and the pavement of the pathway.

The structure looks like a sculpture. It is positioned above the flowers without obstructing the view neither creating shade on the flowers that will cause any trouble for the production of the chlorophyll essential for the life of the plant.

The work of the Spanish painter Miro' must have influenced me in the conception of this structure. I have admired the work of Miro' while I was studying architecture in Venice. This process was totally unconscious. This is a proof that the work of the designer is an accumulation of previous experiences not necessarily related to his field.

4.7.4 Nissi Avenue - North

The presence of the palm trees is evident on this part of the avenue. By lighting only the upper part of the tree creates an object of different dimension. It de-materializes the palm tree that we are supposed to look at it always in connection with the ground.

The existing lighting fittings are vertical too as the palm trees and they eliminate the verticality of the trees as opposed to the low horizontally oriented volumes of the buildings. In this way the buildings look shorter than they are really are. This is due to the mechanism of the eye to compare the size of the palm trees and that of the buildings.

4.7.5 Nissi Avenue – South

The Greek Orthodox cemetery at the end of the Avenue is something that surprises the visitor during day time. It is a peaceful place in a crowded and noisy area. This is due to the rapid development. For this area only the external walls should be illuminated to guarantee the continuity of the illumination. Many tourists are staring at the tombs out of curiosity. For them the cemetery is a source of information about the Greek Orthodox burial culture.

The row of flowers is illuminated by the special structure. This is not visible from the opposite side of the avenue because the lighting sources are directed towards the ground. The full integration of the structure within a context when this is seen from the opposite side was a prerequisite of this project. The structure was designed to be visible only from a close view.

4.7.6 Makariou Avenue – East

This is a brilliant example to show the effect of the blue cylinder shaped proposed lighting fitting. The linearity and monotony of the urban structure of the avenue is eliminated by the presence of the blue lighting sources four meters above the level of the asphalt. The concept is simple but effective when the uses of the buildings are other than souvenir shops or supermarkets that need plenty of light and usually take a wide portion of the street. The colour of magenta on the pavement will help the economy of this kind of activity.

4.7.7 Makariou Avenue - West

This side of the avenue has more cosmopolitan look than the opposite side. The expensive shops and the cafeterias are very carefully illuminated so they do not need any additional intervention from the lighting designer. Perhaps the use of the blue light in this case could be obsolete if I do not take into consideration the view towards the port. The blue light is much needed at the rest of the Avenue towards the port where the economic activities need a boost and also a hint that the port is near. At that part of the road small businesses comprising stationeries or anonymous very small fast food restaurants are illuminates only with the yellow light coming from the eight metres newly installed 'high design' pole.

Summary

It is generally acceptable that the light is directly related to the economic activities of interiors and exteriors.

The expensive shops and restaurants use low intensities of light and usually warm colour temperatures where the fast food chains and the cheap shops use high intensities of light and usually cool light. Light gives messages to humans that are universally acceptable.

This affects the kind of light that is visible from outside and the light that illuminates the pavement of a street. Our perception of a street is affected by the colour and light intensities of light and this affects the total perception of the street as a whole.

4.7.8 The access to the Port

Seen from a bird eye view the whole area of the port is a complicated puzzle of corridors, closed areas, round structures and above all full of poles with lighting fittings that do not follow the logic of the plan.

The main access is situated next to the roundabout at the end of Makariou Avenue. It is a large corridor that passes next to the open area of the small church and leads to the rest of the area of the Port. Many souvenir shops to the right and to the left of the corridor.

The general idea is to create a 'Cypriot' atmosphere and set a limit to the umbrellas that cover the cheap clothes for sale. Also invite the visitor to go further in the area.

One aim of this project is to bring the local culture in Ayia Napa to the fore. A strong element of the Cypriot life that is going to extinguish from the Cypriot environment is the 'Klima'. Cypriots throughout the island except in the mountainous areas used to sit under the climbing vine leaves. Vine leaves were covering a steel structure in every coffee shop and in every Cypriot house.

The proposed structure will be illuminated from above so the light is zenital (vertical) resembling the sunlight that is filtered through the metallic 'leaves'. It will be the inviting element of the port that will attract the visitors to explore this interesting part of the town.

4.7.9 The festival area – Greek history meets the presence

The multi level area for performances and local festivals was the starting point for the creation of the lighting fitting. The design of the fitting alludes the Greek column but with an elliptical section. It has an anthropomorphic appearance with the projector on the top of the inclined head of the fitting that will be used for the installation of a solar panel. The advantage of this solution is that the projector can be varied in optics and lamps and equipped with special elliptical lenses for the function of the space as a performance area.

It is of no doubt that the lighting fittings can be used also as the design of architectural elements that give a character to the urban space.

4.7.10 The connecting corridor to the festival area

Since the area of the Port is the only area where the locals celebrate their local festivities the lighting should have something of the local atmosphere. The 'Panygiri' is an event during a name day of a Saint. Contemporary tents illuminated with incandescent lamps under which merchants sell their local delicacies. The light must integrate this atmosphere and not subordinate it.

4.7.11 The use of light and shade

It is the first project that I will use the shade so strongly for the creation of a lighting situation. I caught myself thinking as a film director who is thinking of the scenography of a play (Terzi 2002). The small churches of Cyprus in the countryside were always surrounded by trees especially Cypresses. The presence of a tree is obvious by the presence of a long shade. In the project the two meters columns will present the trees and they will be illuminated from a low position in a way that they will 'drop' their shade on the pavement of the open area surrounding the church.

The link between photography, cinema, architecture and lighting design is once again proved to be true. Shade is rarely used in lighting projects in a so direct way.

4.7.12 The small becomes big or vice versa

My last visit to Berlin during my last year holiday gave me the chance to explore the world of light in this magnificent city. I have spotted a hotel that is connected with aquarium of Berlin near the gate of Brandenburg. The bar has small white stones around the bar and between the stones there was a magic light created by tiny Light emitting diodes (LED). When I was thinking about the lighting of the rocks that form the piers for the fishing boats the image of the small rocks came into my mind. The detail of the base of the bar of the hotel in Berlin could be useful for a bigger scale project. The big stones thrown into the sea were very similar to the gravel on the floor surrounding the perimeter of the bar. So the small scale example can be used for a big scale project.

4.7.13 The small church. The house of god next to the house of the devil

Another example of cultural element next to economic activities like the monastery of Ayia Napa is the small church in the port area. Nobody visits the small church because it is situated near to shops and restaurants and also it has no sense to visit a modern church of very low architectural value. The existing lighting creates glare and the yellow light on the white walls of the church make it look like stained by smoke. This is the so called 'nicotene effect'. The problem in this case is the lack of a 'fence' between the economic zone and the religious zone. These 'columns' will be used to create a perimeter around the church that will raise the value of the building. The tourist must be able to 'read' the volumes of the building.

The idea of the columns that are lighting fittings for the area of the church gave birth to the fitting for the festival area and the scenery of a Greek agora, another cultural element that will raise the cultural value of the port area and of the town in general.

4.8 The operating costs and the energy consumption. Sustainability Versus Creativity

Depending on the project brief and subject to budgets and available finances, it is not uncommon that the time span for the implementation of a master plan ranges from five to ten years. The success of lighting master plans strongly depends on the continuity and perseverance of the parties involved (Brandi 2006).

Special modules were filled for the calculation of the costs (Brandi 2006).

According to Prof. Bonomo, a new installation in general, reach twenty five to thirty years of life. The parts that have to be changed are the refractors, the gears, the plastics that keep the water out of the electronic parts of the fitting. The high temperatures of summer contribute to the deterioration of these parts faster than in other parts of Europe.

4.8.1 The mortality of the lamps

The medium span of life of the lamps is the time when fifty per cent of the lamps run out of service. Waiting until all the lamps go off means having variable illuminance along the asphalt and this is considered critical for the safety of the people. Led

lamps do not have this problem because of their long life span that can last for the first six years. The lighting of the streets is not considered in the costs of this project because the government is taking care of this part of the town. For the estimation of the costs only the supplementary proposed lighting is considered. The installation of the poles at Makariou Avenue has already taken place and this is one main constraint that I developed into a challenging design tool.

What causes CO₂ emissions is among other electrical and electronic equipment. For every Kwh of electrical energy saved, the release of 0,7kg Co₂ is released into the atmosphere (Charalambopoulou, 2008).

In addition harmful gas emissions such as Sulphur and Nitrogen Oxides are reduced also. This makes lamp specification a Key decision.

The lamps of the existing lighting fittings used now are Sodium and HIT lamps the discharged lamps. These are not the best for energy consumption but for monuments like the monastery LED lamps cannot render the surface of the stones so well as HIT (metal halide) lamps. The lighting fittings holding an LED lamp usually cost twice than the same fittings with a HIT or halogen (incandescent) lamp. The calculation of the costs relieved that a correct strategy for lighting design is the best solution for sustainability design. The replacement of all the lighting fittings with similar ones with LED lamps does not bring the desired solution.

For the calculation of the costs a span of six years was taken into consideration. (Brandi 2006).

A new installation lasts for fifteen to twenty years and the benefits are the use of new technology, lower costs for energy consumption.

The following areas are taken into consideration:

The Port, the Nissi Avenue, the Makariou Avenue, the pathway along the beach.

| | | | |
|----|---|---------|----------------|
| 1. | Total Power absorption | 3,7 Kw. | |
| 2. | CO ₂ release in the atmosphere | 2,6 Kg | |
| 3. | Operating costs for six years | €49962 | €8327 per year |
| 4. | Purchase and installation costs | €476282 | |
| 5. | Removal of existing lighting fittings | €52000 | |

Summary

The most interesting discovery is that the use of the three types of constraints leads to valid results and also to artistic work. It is demonstrated that the form of the lighting fitting is an important tool in the hands of the designer.

Chapter 5 - Project findings

5.1 The feedback of the tourists, the owners and the other professionals

The people who work in the tourist industry, both the officials (Cyprus Tourist Organisation C.T.O, the municipality and Urban Planning department) as well as the tourists were asked to give their feedback after the completion of the drawings.

The feedback of my consultant who is an experienced light designer was vital for the good outcome of the whole project. He has commented mostly on technical issues and not methodological.

The engineer of the Municipality of Ayia Napa approved all my proposals.

Instead of conducting a small scale survey, which I estimated would not produce very valid and reliable results, I considered a more qualitative approach in terms of my data collection technique, which I felt would be a more effective and appropriate tool for my case. The tourists and the locals expressed their opinion within the context of the intervention. By doing so, I will give the opportunity to the interviewees to compare the proposed images with real life.

The aim of the open interviews is to have free conversation with the people who have a direct experience of the place. The tourists were less willing to speak, especially the Russians. The comments of the tourists were very general. 'Its good, I like it, etc.' The following explains in detail what data I have collected by showing photos of the proposals during the day and in the evening to passers by who were selected for their appearance and therefore their world views.

People who work and live in the context of the research can give valuable information about facts that the researcher does not have the possibility to discover by myself.

5.1.1 Makariou Avenue

A Cypriot graphic designer whom asked about the proposal said that the proposed lighting fittings could be smaller in diameter and that the plain blue colour of the

shade was very plain for the purpose. According to the designer, the shade should have more hues of the colour blue and that the colour itself should be of more earthy colours. This way it could be more integrated in the environment. When he was shown the nocturnal aspect of the proposal he said that he preferred this scene more and that he had no negative comments about it. The reason why he did not like the shade was because it looks simple from a distance. The shade is more complicated in reality.

A Harvard University graduate Senior Officer of C.T.O. and a PhD architect specialized on sustainable design when interviewed made the same remarks about the shade. They both preferred one single fitting. I explained to them that this was my initial aim but I had to change it later after the installation of the new fittings from the authorities.

From these interviews I understood that the proposal is acceptable to the educated specialists in the field concerned. This particular part of Makariou Avenue nearer to the port was not so much visually polluted as the rest of the avenue because there were more trees between the buildings.

5.1.2 The Port

Entrance of the port

The image of the proposed structure with the 'Klima,' vine plant was shown to employees of the shop and of the restaurants nearby. Everybody liked the idea. It was obvious that all recognise the necessity for a change. The employees of the local enterprises and the tourists did not see any problems on this issue.

The tourists and the employees recognised immediately that the structure was representing a hanging vine plant which is a good sign for the success of the proposal.

5.1.3 The festival area

A waiter working at a nearby restaurant mentioned that many tourists renting the four wheel motor bikes use the ramps of the platform for manoeuvring. According to this waiter many accidents happen because there are not safety barriers where the proposed fittings that allude to the Greek column. So the proposed solution will have

a triple task. The new luminaries must serve as lighting fittings, as architectural elements and physical safety barriers.

Another waiter of a restaurant nearby said that the existing lighting fittings are becoming dangerous because they are fifteen years old.

A captain from Greece who sells cruises to the tourists said that the festival area is an empty lifeless dry place that needs green for shade and water for freshness.

5.2 The presentation techniques

The book 'colour drawing' of M. Doyle is a unique source of knowledge about the rendering with both hand drawing and Photoshop program for image manipulation. The results are of professional level equal to that of an illustrator. The technique is based on the touching and retouching of the drawing by scanning the sketch, colouring with Photoshop and retouching again with the pencils or markers. The effect is highly artistic and rich of information. The contrast of light and shadow is very well rendered.

So central is the role of the drawing in the design process that Jones (1970) describes the whole process as 'design by drawing'.

5.3 The proposals

The drawings accompanying the documents constitute a panorama of graphical representation of the existing situation, the first sketches and drawings that were usually far away from the philosophy of the project. A list of the all the drawings are found at the chapter 4.6. The CD accompanying this document contains all the maps in PDF format.

The proposal starts with the history of Ayia Napa and urbanisation. Relevant information was offered by the municipality of Ayia Napa and the Urban Planning Department.

5.3.1. A fictional tourist. The video

The view of the video that was taken during the summer period is a direct way to understand the experience of walk through Nissi Avenue, pass Makariou Avenue, follow the crowd, enter the clubbing area and then go back to the port. There is a similarity of the route in a building with the route in a walking area of a town. The balance of the light intensities must be present in both cases. A high contrast of light have to take place only if there is a reason. The reason for collecting this data was the need to become aware of the sequence of events that happen in front of the viewer and how a person can absorb the information that comes in the retina of the eye. The most problematic areas are the empty plots of Nissi Avenue. This problem will be solved with the lighting of the trees and even the plant of new trees where it is necessary.

5.3.2 The Monastery area

The monastery area is a complex case because the core of the culture of the town is almost mixed with the most evident case of imported culture that is the clubbing area. It is a jewel immersed in the ugliness of the new structures. It was the first project that I have studied more in detail and this was after a request from the engineer of the municipality to give a more concrete idea about this particular area.

The photographic material gathered during the periods of summer and winter was important to individualise the two aspects of the space. The lighting of the square is not just an action of illuminating the walls of the monastery. It was an action of determining the role of light in the philosophy of the relations of the two worlds. The Religious and Profane. The light must touch the surface in an even and soft way. The rays hitting the surface must not hit the stone walls perpendicularly. Not only because such an action will eliminate the necessary shade and thus blocking the reading of the surfaces but also will include the monument in the group of the new structures. The question is whether the open space belongs to the monument or to the town. The square is a place of respect to the church or a place of entertainment. A point of transition between religious and economic domains. The answer is given already by the tourists themselves. They do not visit the open place because they do not feel that there is any particular reason and also because the route is passing from the limits of the square and not passing through. The aim of the project is to give an illumination expressing the transition between the corridor where the stream

of people floats and the quiet open space that is destined to emptiness. This is a result of the subordination of the open space to the existing monument. The light is not giving new uses to the space but it expresses the relationship between the parts of the context.

5.3.3 The Makariou Avenue.

The media used for the observation are multiple: Video, photos, observations during different periods of the year. The centre of the town is connected with the port via Makariou Avenue. This road that later became an avenue was the link of the village with the sea. This is the reason why it has higher status than Nissi Avenue.

The intervention of the urban planning department has renewed the lighting conditions in a technologically better way but not in a better social way. The new poles with fittings do not have so much energy sustainable lamps or equipped with any sensors for controlling the light, essential for the various scenes during the year.

The strategy implemented was to consider the new lighting as another constraint and try to intervene accordingly. The result was the creation of a fitting that will give vivacity to the pavement and to differentiate the avenue into various parts. There was no need to experiment before proposing because the colour mixing was already done by the restaurant at the crossing of Makariou with Nissi Avenue. The tourists that were passing in front of the restaurant were having an unintentional bath of magenta light colour. The result was pleasant and I was fully convinced to adopt it.

The above case demonstrates the diversity of the profession of the lighting designer as a person who must have an ability of keen observation of the phenomena that happen around him and take inspiration from them. The sources of inspiration for light are not always found in the books.

The blue light has symbolic message: The connection of the sea life with the town.

The panoramic view

The view of the daylight aspect of the avenue is a proof that the architecture of the place is anonymous. Architecture is revived during the night by the different lighting intensities and temperatures. The proposal shows the results of the limitation of the anarchy of the existing lighting. All the lighting levels of the showroom and lights will

be according to a non glaring status. This is a construct and it is an idealistic model from a designer's point of view. It is apparent that the lighting of the various premises will give the 'accidentally designed' lighting that will offer the desired solution. A solution that is away from any risks of predetermined rational solutions. The natural diversity of everyday life must not be suppressed in any case. Human activity is unpredictable and it is humans who must enjoy the fruits of this richness of tones and colours.

The lighting fitting

The design of the anthropomorphic lighting fitting destined to illuminate the whole width of the Avenue was a new element. This design was created before the installation of the existing poles. So the whole design had to be changed and adopted to the new requirements.

5.3.4 Nissi Avenue. The endless commercial strip

The length of the strip is too long for the scale of the town. The other problem is that the construction is discontinuous. In lighting term that means spaces in darkness. The question was how to use natural diversity to illuminate the Avenue in a creative way? What tools are available to use in order to unify the fractured elements of the strip? These questions did not lead me to the solution. It is the urge to introduce the trees as lighting elements that led to the definition of the solution. The trees as symbols of the difference of this place from other parts of the planet. This concept has led to the design of the lighting fittings that resemble an organic object.

The result of the measurements of the light intensities just outside the shops revealed that there is a high ratio of contrast causing eye stress. The glare has to be eliminated and the harmony of the light and shade to be re-established. The photos and the video taken revealed that there is a discontinuity of light because of the empty plots. There is a need to reconnect the dark part of the road. This can be done by using the trees. A pole with lighting fitting cannot reconnect the parts of a street as a tree does. A row of trees can create rhythm. A row of poles cannot.

Replacing the replaceable

The lighting fitting for the planting is an allusion of the sailing post seen from a different angle. It is not any more concentrated in large numbers as the old fitting that now is illuminating the port area and some areas of the centre of the town.

5.3.5 Krio Nero Avenue. A shorter Nissi Avenue

The design of the two Avenues is similar but the use of them very different. Krio Nero Avenue has more green than Nissi Avenue. The same lighting strategy and the same lighting fittings can be applied as in the case of the Nissi Avenue. This is a proof that the design of the fittings and the purpose of their design is valid.

5.3.6 The clubbing area

This area is an independent area where context is not so important. It is better to leave the clubbers lit the area as they like as it is not a liveable place but just a scenery. The only intervention I could suggest is the use of small LED fittings on a wire that have the purpose to provide the minimum light for the centre of the street.

5.3.7 The port. The Cypriot area

The port area is the area of the connection of the people with the sea and the traditions of the place through festivities.

The lighting fittings play a major role on the reinforcement of the feeling of the local culture. In this case local culture is the culture in a broader sense. Ayia Napa and Cyprus as a whole are part of the Hellenistic world.

The 'klima' (wine plant in Greek) is a symbol of the past way of life. The proposed installation at the entrance of the port alludes a piece of the past built landscape of Cyprus.

The Greek columns at the festival area are meant to give a character to the place. The lighting fitting once again becomes an architectural element that is symbolising the Greek identity of the place. A place, like its inhabitants, has to hide its identity in order to survive. This action was very common in places under foreign occupation. The small size of the island has contributed to the weak nationalism of the Cypriots in general. They have no problem to speak English or use English words in the signs outside their shops.

5.3.8 The pathway along the beach

A false rock may resemble a fake design without symbolic significance. The transparency of the object allows it to become a lighting fitting with diffused light. The environment remains totally unharmed by the presence of the lighting fittings.

The government authorities have decided to install poles of five metres high for the illumination of the pathway. Their choice was based on the fact that when the Sodium lamps are five meters high they could not be vandalised. This choice does not take into consideration the fact that the light produced by these lamps will be yellowish and will make the natural elements to appear colourless and two dimensional. Thus the visitors will be deprived from the joy to look at the stars, the beautiful nature and the sea under the moon. During the day the whole landscape will be full of poles and during sunset there will be no possibility to enjoy the changing colours of the sky due to the interference of the light sources.

The animals and the insects will be experiencing the continuous danger of dying, because their predators will find them easily under the diffused light.

Thus, the rights of the people living and visiting this island have not been respected, when putting in place the existing lighting system of this cosmopolitan tourist resort.

Chapter 6 - Conclusions and Recommendations

The recommendations are explained more in a graphic form in the evidence of achievement document as proposals. This chapter will address the terms of reference and objectives (Modules Guide 2008-9) as they are described in Chapter 2.

6.1 Terms of reference

The involvement of the local people and the authorities in the preparation of the plan was partial. The explanation was that lighting is perceived as an artistic activity and as something surplus from their basic needs. The people working for the authorities may have felt that they are not competent enough to have a clear opinion, but they liked the result. This fact is evident from the reactions of the people interviewed while they were looking at the proposals.

The use of the Master Light Plan as a National model for the tourist areas is possible only in certain cases. The lighting of the streets, the regulation of the chaotic situation of the luminous signs and the light pollution. As regards the proposals for specific areas these will be different because of the difference in context. The methodology of approaching the problems will be the same used for this project with certain variations.

Light and Shadow. The combination of these two elements is a big force in the hands of the designer. The three dimensional appearance of the objects known as modeling is achieved using the light and shadow in a wisely. In some cases the shadow prevails as in the case of the pathway along the beach. The absence of shadow helps the vision. The horizon dividing the sky from the sea becomes evident (Narboni, 2004).

The presence of shadow along the pathway is inevitable. It is not part of the design of light but offers an opportunity to relax from the continuous bombardment of light along the route towards the centre of the town.

Colour and light. The presence of colour on the facades of the buildings is inexistence. White and variations of light grey prevail on the walls. The colour is

present only on the signs. The trees are the elements with green colour and this is another reason why they are emphasized in the case of the lighting of Nissi Avenue. The yellow colour of the existing street light at Makariou Avenue does not illuminate the white and grey surfaces of the buildings without changing their appearance in a non pleasant way. The addition of blue colour at Makariou Avenue is another measure to add colour and make the space more interesting.

Eco light. The lamps proposed are mostly of low energy. The limited number of lamps used guarantees the sustainability of the proposals. Using big numbers of low energy consumption lamp does not necessarily mean save of energy. It is a better tactic to use the proper lamps in limited numbers even if those are not so much of low energy consumption.

Keeping the minimum distance between the source and the surface to illuminate is the best strategy for energy saving. According to the Inverse square law, the first meter you move the source away you reduce four times the luxes arriving on the surface. The second meter you move the source away you reduce sixteen times the amount of luxes.

With this logic, the special lighting fittings for the plantings along the cycling pathway of Nissi Avenue are positioned in a short distance above the planting.

The lamps used for the proposed special lighting fitting of Makariou Avenue are fluorescent. The kind of blue light produced by a fluorescent lamp is different than the intense blue light of LED. I consider the way that fluorescent lamp spreads the light more appropriate than LED.

The position of the poles in the middle of the square of the monastery of Ayia Napa produces a distribution of light that is more concentrated on the middle of the square. The walls of the monastery are illuminated diagonally to accentuate the texture of the surface. There is a focused aiming of the lighting sources. Controlled light that is dispersed where it should and not on surfaces that should be kept in shade. This strategy of careful aiming brings the desired sustainable energy project.

Light Plans. In my opinion the requisites of a successful Light Plan are met completely. Comparing the aims of a light Plan in Italy PRIC as it is described in Chapter 2 and the research questions is evident that they go in parallel.

The notion of security is not clear in most cases of lighting design of open spaces. More light does not necessarily mean more secure places. According to the police of Cyprus most of the crimes in Ayia Napa happen under fully illuminated spaces. There is contradiction on how to illuminate remote places as the beach. On the one hand complete darkness prevents women from accessing a place but on the other hand no woman is willing to walk along the sea alone without the company of a man. By examining this particular habit of the women I came to the conclusion that the darkness should be maintained for the sake of enjoyment of the natural beauty of a dark sky full of stars and a horizon made of the line of the sea level. The lighting of the pathway along the beach has followed this philosophy.

Context. Cultural, symbolic, economic and historical.

The four types of context are examined and analyzed:

Cultural Context. The places of special interest are shown on the maps. There is one Ayia Napa for the locals and one for the tourists. The culture of the local people has disappeared with the demolition and the complete change of the character of the whole historic center. This is probably the reason why the monastery area is isolated. The monastery was 'breathing' from the village. Without the intervention of a proper urban plan able to give a solution to this problem a lighting plan cannot bring a radical change by itself. This is the weak point of the project.

Symbolic Context. The numerous signs of the facades form the chaotic situation that expresses the anxiety and the low level of professionalism that characterizes the owners of the restaurants, cafes, pubs etc. Some of the owners do it unconsciously since that whole town is covered by signs. They consider it not normal to have just one sign on their premises. The existing poles at the port area and elsewhere have a symbolic value that is taking a more valid character with the proposed lighting fittings. The lighting fittings have a strong symbolic power.

Economic Context. The lighting of the commercial areas was done mainly according to the economic activities. Makariou Avenue was treated in a different way than Nissi Avenue because of their different character and importance in commercial value.

It is obvious that the whole town is a huge commercial center that is organized for the entertainment of the visitors. This is probably another reason why the monastery area was kept isolated. It was not possible to make money from it.

Historical Context. The historical context does not exist anymore. It is replaced by the new buildings. History does not sell. Everything should look new and modern at the service of the client.

Luminous signs

The study of the size and their disposal is essential in order to formulate the recommendations. They are always more than actually needed. The recommendations include the reduction of the number of extra signs and the creation of a proper environment. The study of the perception of the signs in Las Vegas from the work of Venturi, Brown and Izevour has guided any decision to urge the owners to use more vertical signs than horizontal. The reduction of the size and the number of the signs brings also reduction of the energy consumption.

6.2 Research questions

How to produce the plans and a booklet with directives for interested parties that are really effective?

1. The effectiveness of the proposals depends mostly from the analysis of the context and the design of the lighting fittings.

The action research approach raises the possibilities for proposals with successful results. The continuous design and redesign of the proposals led to the evolvement of the initial ideas into mature proposals.

The recommendations are tailored to the needs of the owners and also to the needs of the public. The quality of the environment will be improved in the highest possible way. In architectural design it happens that the architect has to compromise to save the major part of his proposal from the demands of the client than losing the major part. In architectural design everybody has an opinion. In lighting, less people have the possibility and the willingness to interfere and influence the work of the lighting designer. Not many people understand about lighting calculations.

How to produce a light plan appropriate for Mediterranean people who prefer cool and strong light that provides a sensation of freshness (Bianchi 1991) and for tourists from Northern Europe who prefer warm and low intensity light? Tourists will like a light scene that makes them feel that they are in a Mediterranean environment or one that reminds them a cooler environment and thus feeling fresh and enjoy holidays?

2. Judging from the answers of the tourists there is not particular taste for colour for the exteriors of the buildings. Blue looks good for all nationalities. Since the project deals with the lighting of open spaces the difference of the taste of cool and warm light in interiors that exists globally it does not seem to apply in this case. This assumption has not been yet proved.

How to define the scenes appropriate to the celebration of the historic townscape?

3. The various lighting scenes are born from the concept that derives from the need to give an identity to a place. The history of Cyprus and the culture of the place have played a great role for the evolution of the concept. The focal points and the sequence of vision are those elements that have influenced the design.

How to deal with the periodic lighting of the site for festive uses?

4. A great number of lighting fittings will be switched on only during the summer period. Different circuits will allow the authorities to switch on the lights for certain activities like festivals at the Port area and at the square of the monastery.

How access-lighting for parking lots and pedestrian areas on the site be assumed?

5. The lighting for pedestrians is solved in a different way in the Avenues of Makariou, Nissi and Krio Nero. This matter has been already discussed in a previous chapter.

As regards the lighting of the parking lot at the Port area, the existing numerous lighting fittings change the context rather violently instead of being integrated with it. Their 'local' character appearance during the day and their yellow light during the night do not create a very pleasant atmosphere. They must be replaced with lighting fittings of different form and light emission.

Are blue and green appropriate colours to use only because the eye is more sensitive to these two colours during Scotopic vision (human vision at night) and also related to the sky and the sea?

6. The green colour of the light is not always the best for the plants and trees. A good lamp that renders the various colours of the trees is the most appropriate. Blue colour is good for illuminating the surfaces of the walls and stimulating the fantasy.

Is there a need to design any special huge structures to make the night scene more interesting?

7. This will be not necessary. The main reason is found at the map showing the points of views within the town are narrow. Another big structure like the one existing in the Luna Park will cost an enormous amount of money and energy. In addition it will not be visible from the main routes followed by the tourists. It might also create light pollution rather than creating an interesting nightscape. A wiser solution might be the intervention on the existing mega structure that is visible for the sea.

Is it possible to find a way to satisfy the demands of the local shop owners to make their enterprise more visible than the one of the neighbour next door without compromising the visual comfort?

8. The philosophy of the recommendations addresses this question. It is a philosophy that embraces the concerns of the owners and satisfies the guidelines for an acceptable environment.

How to develop a flexible plan that can adjust to the changed use of the establishment and thus the lighting conditions?

9. A guide of lighting the interiors can be distributed to the owners for any renovation. The content of the guide will derive from the general good practice of lighting design. The exterior will follow the recommendations for the signs.

Can a Master light plan really help the local tourist industry to increase the pleasures experienced by the tourists visiting the island and make them become repetitive tourists?

10. A Master Light Plan in other countries is implemented in parallel with the other Master Plans. The Urban, the Green, the Colour etc. this is an evidence of the role of lighting in the transformation of the built environment. During the day the lighting fittings become part of the street decoration and during the night parts of the town are emphasized by the light. The good impressions of the tourists will influence their friends and they will increase the bookings for Ayia Napa for the following years.

It is very important to emphasize the fact that images from the nightscape of the town can be used by the media, by the tourist agents and by the C.T.O. for promotion. The promotion is done through internet. So an interesting lighting can contribute to the increase of the cash flow without being experienced directly but through images in a website.

How to understand the viewpoints of the people involved and propose the right solutions to the problems?

11. To my surprise, the opinions of the involved parties like the authorities were not very helpful. In almost all the cases the people kept their silence. Probably they did not want to say that they are not familiar with the subject. The feedback has already been explained in a previous chapter. The designer has to take into consideration the opinion of the other people but in the end everybody is waiting from the designer to give valid proposals that will change the situation for the better. A test of the validity of the proposals was done by showing the images to tourists, to owners, employees, peers and others.

How to improve the living environment for the permanent residents?

12. By definition the local people must be all the Cypriots who are living on the island are considered permanent residents. The town of Ayia Napa is a place for everybody to enjoy. The inhabitants of this island are visiting the place the whole year and not for a short period as the tourists. The lighting design of certain areas as the port that are used also by the Cypriots for the festivities throughout the year took into consideration the tourist point of view but also the activities of the locals. The area belongs to everybody and the local people should not be neglected as they have equal rights as the tourists.

Chapter 7 - A reflective account of my personal learning and professional journey

7.1. The context

When I first started taking the photos I was a bit in a chaotic situation because I understood that the photos had no meaning without the maps accompanying the images or without categorization. The difficulty of taking photos in a long road like Nissi Avenue is bigger because the points of view are narrow and the images do not represent the reality. Another obstacle is the weakness of the photo to transmit information like sounds, the pollution of the air and the mood of the people. To understand the experience of a virtual tourist who is spending the evening in Ayia Napa I shot a video of half an hour. The difference was great. The sequence of the visual experiences is imprinted on the video making it a valid tool for understanding the point of view of the visitor of the town.

The photo can give valid information if the photographer returns many times to the point of interest to capture the reality of the context.

7.2. The maps

Creating a map is like filling a big notebook with data. In my opinion a map of a town looks like a map of a country. The areas are similar to regions, each one with its own character and history but with a need to coexist next to each other. Initially I discovered only the most important areas. As a Cypriot I knew only a part of the town. The rest of it out of the tourist areas was hidden from me because it was out of the areas of entertainment. My duty as a designer of a Light Master Plan was to indicate the limits of the area of intervention. The whole area is vast and the criterion for an area to be included was the proximity with the centre. Only part of the Nissi Avenue should be within the limits as it is too long.

7.3. The interviews

After interviewing the authorities and other people in the C.T.O., I realized that I was not getting any serious comments about my proposals. The general reaction was

positive but not very helpful for me. Probably because the people are not specialists of the subject and they could not give me any serious comments.

The best feedback came from the owners of the shops and the employees. The reactions to the images shown were direct probably because they were affected directly and they were living the spaces every day.

7.4. Searching for knowledge. The texts

My library is full of books about the subject of lighting.

Before my doctorate studies I had a difficulty to read a text and extract the meanings immediately for use. Reading a text was limited just to reading activity and not to the absorbing information activity of mind. While working as a student - researcher I learned to treat the information as something near to common sense. This kind of approach was reinforced by my activity as a lecturer.

A brief analysis of how each book has affected my work is the following:

Light and communication of Clausen. Found through navigation on the internet. This is a manual of navigation in the world of light. The author describes how humans perceive light in relation to human evolution. This was the start of the concept for the 'klima' structure at the entrance of the port.

Guida alla illuminazione stradale e urbana of Bonomo. (Guide for the street and urban lighting). Found in the collection of the books of the Italian Association of lighting designers AIDI. The calculations for the street lighting were done following the guidelines of the author.

Lighting of the landscape of Narboni. Found at the stand of PLDA of the Frankfurt lighting fair 2008.

The rich experience of the famous French lighting designer Narboni is found in this text. The method described in the text for the capture of photos at dusk so the lighting fitting is visible when it emits the light was very useful.

What also stimulated my attention was the terminology. The meaning of the words constraints had triggered my mind to investigate more and understand that some terms in research in general have a totally different meaning than in research for design. And when I investigated more I discovered that the same notions used in research can be used in design as well. My previous belief that design is not based on logical arguments and that the methodologies used for other disciplines cannot be applied has failed.

Architectural research methods of Groat and Wang. Found while scrolling the internet on books with subjects about architectural methodologies.

Any student of architecture or practicing architect must read this book. Various cases of the major research methodologies are analyzed and the researcher can compare the approaches used in architecture. It was very interesting for me to know that the methodologies used were valid.

How designers think of Lawson. Found in the library of Nicosia University.

The interior world of the designer is unfolded and his difference with the Architect's world is explained. The most important source of information is the analysis of the constraints into symbolic, practical and formal. This discovery had affected my concepts of the designs already explained in chapter four.

Learning from Las Vegas of Venturi, Brown and Izevour. Found in the bookshop of the University of Venice while I was studying architecture in 1987.

My recommendations for the owners were built on the discoveries about perception of the signs in the town of Las Vegas.

Light for cities of Brandi. The journey of a virtual designer visiting a virtual city is the story narrated in the book. The narration is a very important part of the design. It is also an interesting way to connect the various parts of the city as a writer connects the chapters of a novel. The sequence of viewing the various scenes is important because the lighting strategy is based on memories like the previous images that preceded the image in our mind.

Prof. Ariizumi's dissertation. Found in Sage publications of papers. The writings of Prof. Ariizumi confirmed my concerns about the validity of the action research approaches as a method of evaluation of learning to produce optimal results.

The PLDA conventions of 2007 and 2009 notes. Found in the site of PLDA.

The papers of the peers are a source of diverse knowledge. It is the result of professional work, observations and points of views. The data gathered were treated as information that was used to establishing a correct stand against the major issues of the profession of lighting design.

The C.I.E. Guides. Found in the website of the organization.

As the American lighting designer Branston suggests, following only the rules when we design is against reflective thinking. The recommendations of C.I.E. were taken into consideration only to be careful not to pass the suggested minimum values.

7.5 The design of spaces

Looking at my first sketches and drawings I recognize an uncertainty on the proposals. The images were presented in a very poor way without any concept to support the initial idea. My ability to create a concept changed gradually by reexamining the proposals many times. At the end a mature design came out. From that moment I am able to give solutions of a certain level of design that exits my abilities as an architect. Now I feel that I am a designer as well.

My consultant's comments about my first proposals were that I should present my thoughts graphically and not go immediately to the final drawings. His feedback about the various techniques used for the calculations of the output of a new fitting is precious. This kind of information is not found in any book or manual because they are real methods proved under real situations.

7.6 The Euroqual 2010 convention in London

The most important lesson from participating in this convention was the experience of meeting other foreign researchers explaining their projects using qualitative methods in the field of space. This was a great chance to get feedback for my work from foreign researchers. The academic work and the ease with which the participants explained their work changed my way of considering the research

methodologies as something highly academic and difficult to apply. After this experience the way of extracting information from the people of the street was much easier and more familiar to me.

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Appendix I

Curfew: The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a government controlling authority, usually the local government.

Environmental zones: Areas where specific activities take place or are planned and where specific requirements for the restriction of obtrusive light are recommended.

Floodlight: Projector designed for floodlighting, usually capable of being pointed in any direction.

Optical light output ratio (LOR): Ratio of the total flux of the luminaire, measured under specified conditions, to the sum of the individual luminous fluxes of the lamps when inside the luminaire.

NOTE: For luminaires using incandescent lamps only, the optical light output ratio and the light output ratio are the same in practice.

Lighting installation: That part of a lighting system which comprises the luminaires and their supporting structures, installed at the location or property concerned.

Luminaire: Apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except for the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries with the means for connecting them to electric supply.

Obtrusive light: Spill light which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information.

Outdoor lighting: Any form of permanently installed exterior and interior lighting systems which emit light that impacts on the outdoor environment.

Public lighting: Lighting provided for the purposes of all-night safety and security on public roads, cycle paths, footpaths and pedestrian movement areas within public

parks and gardens. It can also, through strategies such as 'City Beautification' help to increase commercial and tourist industries.

Relevant boundary: Any boundary of a residential property over which it is physically possible for spill light from the subject lighting installation to pass and directly impact upon either:

- a. A dwelling located on the subject property; or
- b. The potential site of a dwelling if there is no development on the subject property.

(A boundary screened by a high opaque fence or other substantially continuous physical barrier that obstructs direct light, preventing it from reaching the dwelling, does not comprise a relevant boundary. The physical barrier may be anywhere between the subject lighting installation and residential property.

Residential property: Land upon which a dwelling exists or may be developed, e.g. land zoned for residential development.

Sky glow: The brightening of the night sky that results from the reflection of radiation (visible and non visible), scattered from the constituents of the atmosphere (gas molecules, aerosols and particulate matter), in the direction of observation. It comprises two separate components as follows:

- a. Natural sky glow and
- b. Man - made sky glow (light emissions).

Spill light (stray light): Light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed.

Upward Light Output Ratio (ULOR): Proportion of the total flux of the lamp(s) of a luminaire that is emitted by the luminaire above the horizontal when the luminaire is mounted in its normal, designed position.

Upward Light Ratio (ULR): Proportion of the flux of a luminaire and/or installation that is emitted, at and above the horizontal when the luminaire(s) is mounted in its installed position. (ULR is exactly the same as ULOR inst. As used in CIE 126-1997)

Recommendations for urban areas (C.I.E. 136- 2003)

In this section recommendations are given for the following application fields:

1. Residential areas
2. Industrial areas
3. Commercial areas
4. Miscellaneous areas: Pedestrian walkways and paths, pedestrian road crossings, pedestrian staircases and ramps, pedestrian and cycle bridges and underpasses.

The lighting recommendations are given in two forms. Firstly in horizontal illuminance at ground level and secondly as a new alternative design guide using the parameter semi-cylindrical illuminance at 1,5m above ground level.

Semi-Cylindrical illuminance. In areas dominated or used by pedestrians the most important lighting requirement at night is to be able to recognize other people approaching or in the vicinity at a reasonable distance away. The minimum distance required to recognize any sign of hostility and take evasive or defensive action is according to research, 4m in front of the observer. Vertical illuminance of a sufficiently high level at the average height of a human face-approximately 1.5 m above ground level. Research has indicated that the minimum semi-cylindrical illuminance necessary to recognize and gauge a person's intention at 4m is 0.8 lux at 1.5m above ground level. At 10m distance, which would give greater time for any necessary avoiding action the recommended level is 2.7 lux.

Discomfort glare

In the same way, a new approach to discomfort glare assessment has been introduced for low mounted luminaires, up to approximately 7m, where the risks exists of pedestrians having to look straight into the luminaires.

Modelling

In some situations e.g. civic squares, the appearance of people, the street furniture and architectural features in the area needs to be considered.

Residential Areas

Collector roads (They link all local roads to an arterial route)

This section of the recommendations is restricted to roads for strictly local residents' access.

As the lighting must cater both for the vehicle users on the carriageway and pedestrians on footways it is recommended that lights be installed where necessary on both sides of the road in either opposite or staggered formation.

The lighting of these roads will generally form a transition between an arterial traffic route and the local street. It is therefore recommended that the height of the poles above ground level be between that of the poles in the other areas. In practice this will mean mounting heights from 6 to 10m. Spacing to height ratios between luminaires will depend mainly on the type of light distribution of the luminaire and, to a lesser extent, on the road and pavement width. This will need to be calculated. In practice it is unlikely that these will exceed 4 or 5 times the mounting height of the luminaires. The pole itself should be slim and painted either as unobtrusively possible or to be a feature in its own right. It could be noted that a glossy paint finish will tend to soften the outline of columns in sunlight and make the pole less conspicuous. Any accessories on the pole, like signs should not reduce the mechanical strength of the pole, increase the wind area over that used in the pole design or obstruct access to cable joints or fuses in the pole.

Local roads (Roads within a town)

The lighting design of these roads must optimize the road user's ability to:

- a. Visually orientate in the environment
- b. Detect obstacles on his/her path
- c. Perceive the movements and intentions of other people
- d. Read street signs and house numbers
- e. Recognize landmarks, bus stops, refuse containers, fire hydrants, kerbs, etc.
- f. Appreciate the appearance of the street and its environment.

In the above, a road user includes the driver of a motorized vehicle, a cyclist or a pedestrian.

The arrangements of luminaires will be dependent on the width of the street between property boundaries. Generally a single row of luminaires should be adequate, but the transverse distance between a luminaire and the property line on the opposite

side of the street exceeds twice the mounting height of the luminaire, an additional row will be required on the opposite walkway. The chosen mounting height of the luminaires will depend on the relationship of the luminaires to other street furniture. It will normally vary from 4m to 8m. The lower mounting heights may be dictated by the presence of trees.

With this form of lighting it may be necessary to group luminaires in clusters, to locate them relative to other items of street furniture or align them with other features in the area. No precise distribution data can be recommended as this will vary considerably according to the type of luminaire chosen.

At all times it is important to ensure that the appearance of the street is attractive both by day and by night. Care should be taken to ensure that the choice of luminaire, pole, paint finishes and related equipment accord with the general architecture of the buildings in the vicinity and the design of other street furniture. Where possible the mounting height should not exceed half the average height of the buildings in the street, but should not be less than half the width of the street.

Commercial areas

The section of the guide therefore covers three aspects:

1. The older type of town centre with main streets and shopping centres.
2. Streets with a high density of shopping and roadways limited to bus traffic and/or lower volume vehicle access.
3. Outdoor shopping malls exclusively for pedestrian use.

At these areas are generally pedestrian orientated their needs require specific attention. Pedestrians must be able to:

- a. View the footway or road surface along which they are walking. This is necessary to see steps, ramps or to avoid stumbling over obstructions or into damaged surfaces in their pathway.
- b. Recognize the intentions of approaching pedestrians, be they friendly, indifferent or hostile. The quality of lighting should be such that later identification of people is possible if needed.
- c. See approaching vehicles and be able to judge their distance, direction of travel and approaching speed.

- d. Identify building signs and other objects that provide for spatial orientation within the area. This ability is particularly important for the tourists.

In addition, the lighting should provide an interesting, pleasant and vibrant night-time visual scene which will attract people to the area and encourage social contact.

A local landmark known and of unquestioned use during the day as a means of orientation and direction to both motorists and pedestrians can be lost totally during the hours of darkness.

Much that is 'negative' within our urban environment can be lost at night, and by imaginative public lighting the finer and more worthwhile elements of an area can be highlighted. If the area is totally uninspiring then thought should be given to using the lighting equipment itself as an attraction and choose columns and luminaires accordingly.

Within commercial areas much more visual information is required from surfaces other than the horizontal. In particular the vertical plane is important as this covers not only pedestrians but door entrances, signs and indeed most other 'objects' of note within an urban environment.

Luminaires therefore need to be selected to give light as much on the vertical as on the horizontal planes but with care not to produce too much glare. Higher actual luminaire intensities can be permitted than is usual on more general traffic routes because the background is lit accordingly and glare will not be present.

A fair amount of flexibility in mounting heights and choice of luminaires is permitted in these areas.

- a. Special bollards or luminaires integral with other components of street furniture at lower mounting heights (typically less 1.5m) may be used provided they are specially designed and use special materials, such as concrete, in their construction. No recognition of faces must be required in this case.
- b. Medium mounting heights of 3-5m. Frequently decorative type luminaires singly or in clusters will be used for this type of lighting.
- c. Intermediate mounting height of 5-10m. This type must be used with discretion especially when used with outreach brackets.

- d. High mounting heights above 10m. Deep bowl type luminaires or floodlights are best suited to this type of installation. Care should be taken with the former that adequate vertical illumination is provided so narrow angle units will not generally be favoured. Floodlights can be mounted on similar columns or on buildings and are ideal for creating attractive modelling effects.

Two advantages of wall mounted luminaires are the following:

- 1. No restriction for pedestrian or vehicle traffic.
- 2. Lower cost.

Two disadvantages are the following:

- 1. You need the approval of the owners to install them.
- 2. Luminaires in close proximity to the building can create unattractive patches or streaks of light on the face of the building.

It is better if switching can be provided to reduce the lighting levels after hours of high usage but at no time should this be below a semi-cylindrical illuminance of 0.8 lux at 1.5 m above ground level measured longitudinally if it is installed in a shopping mall.

Statues, fountains, trees and other objects of special interest within the area should be individually illuminated, preferably with contrasting colours of light sources to those used in the general lighting.

During hours when all shop window lights and signs are illuminated these must all be considered as a part of the luminous atmosphere. The supplementary lighting from commercial premises, if controlled, can provide an attractive and dynamic aspect to the total environment by introducing useful variations to the overall lighting levels. The needs of the general public lighting must be considered in combination with all commercial lighting and separately, for the after midnight hours.

Facilities must be given for the organization of special events like suitable plug sockets. Pedestrian areas can, in some instances, be enhanced at night by encouraging the use of illuminated direction and advertising signs. Uncontrolled use and brightness of these signs could, however, create problems with visual acuity and

| Illuminated area measuring not more than | Luminance |
|--|------------------------|
| 0,5 m ² | 1000 cd/m ² |
| 2 m ² | 800 cd/m ² |
| 10 m ² | 600 cd/m ² |
| Any greater area | 400 cd/m ² |

the
total

aesthetic environment and should therefore be controlled by the local authority. The following maximum luminance values for advertising signs are recommended.

Miscellaneous Areas

Pedestrian walkways and paths

The chief requirements for the lighting of these areas will be:

- To allow pedestrians to see obstacles on and/or irregularities in the paved surface on which he/she is walking.
- To enable pedestrians to recognize fellow users of the area in sufficient time to determine the intent of these persons (friendly and hostile) and to take the necessary avoiding action when required.
- To provide an attractive area which will draw people and allow them to enjoy facilities provided in comfort and safety.

Maximum sign luminance values

Lighting requirements for pedestrian walkways and paths (maintained values)

| | E H ave | E H min | E SC min |
|----------------------------|----------------|----------------|-----------------|
| Parks in residential areas | 5 lux | 2 lux | 2 lux |
| City centre | 10 lux | 5 lux | 3 lux |
| Arcades and passageways | 10 lux | 5 lux | 10 lux |

The horizontal illuminance value (E_H) will apply across the pathway and, preferably 5m on each side. The semi-cylindrical illuminance values will apply in both longitudinal directions parallel to the path.

To avoid vandalism no luminaires should be mounted less than 4m above the pathway except possibly bollards made of concrete or other vandal-resistant materials.

Lighting requirements for pedestrian road crossings (maintained values)

| | E _H ave | E _H min | |
|---------------------------------|--------------------|--------------------|--|
| Commercial and industrial areas | 30 lux | 15 lux | |
| Residential areas | 20 lux | 6 lux | |

The average horizontal illuminance should never be less than 1,5 times the illuminance of the roadway on each side of the crossing. Higher levels up to 50 lux may be necessary in mixed traffic situations.

The luminance of the beacons at the crossings should be no less than 300 cd/m² which may be increased in brightly lit areas. Sometimes they must also flash.

The fittings must be directional with antiglare accessories.

Lighting requirements for pedestrian staircases and ramps

| | E _H ave | Ev ave |
|----------------------|--------------------|------------------|
| Staircases on rises | - | Less than 20 lux |
| Staircases on treads | More than 40 lux | ---- |
| Ramps | More than 40 lux | ---- |

Cycle paths

The main requirements for safety on cycle paths are that the cyclist should easily be able to identify:

1. The boundary between path and verge.
2. Sharp bends, humps and fixed obstacles.
3. Objects on the surface such as stones, branches, etc.

4. Potholes and cracks in the surface.
5. Position and speed of other users of the path.
6. Junctions with roads carrying other traffic.

Edges of the path should be marked with non-slip white paint to emphasize the boundary between the path surface and the verge.

Smooth texture should be avoided as, under rainy conditions, the reflection of the film of water can obscure markings and give a very irregular luminance distribution. Adequate vertical illuminance on turnings and bends should be provided.

Lighting requirements for cycle paths

| | E H ave | Uniformity min/ave |
|-------------------------------|---------|--------------------|
| Straight stretches | 3 lux | 0,3 |
| Paths with side roads | 5 lux | 0,3 |
| Junctions with traffic routes | 10 lux | 0,3 |

Transition lighting for traffic routes and cycle paths where there is transition from light to dark areas which will not decrease faster than a factor of 2 per 10m of road until a level of 0,1 cd/m² is reached.

The height of the poles, where the width of the path is 2m-4m, must be no more than 4-5m with glare shields.

Lighting levels for urban Areas

| DESCRIPTION OF ROAD | LIGHTING CLASS |
|--|-----------------------|
| High prestige of road | P1 |
| Heavy night - time use by pedestrians or pedal cyclists | P2 |
| Moderate night - time use by pedal cyclists or pedestrians | P3 |
| Minor night – time use by pedal cyclists or | P4 |

| | |
|--|----|
| pedestrians solely associated with adjacent properties Important to preserve village or architectural character of environment | |
| Very minor night-time use by pedal cyclists or pedestrians solely associated with adjacent properties | P5 |
| Very minor night-time use by pedal cyclists or pedestrians solely associated with adjacent properties Important to preserve village or architectural character of environment | P6 |
| Roads where only guidance provided by the direct light from the luminaires is required | P7 |

Lighting requirements for urban traffic

| Lighting Class | Horizontal illuminance (lx) On whole of used surface Maintained | | Semicylindrical Illuminance (lx) |
|----------------|---|-----|-------------------------------------|
| | Average | | Minimum |
| P1 | 20 | 7,5 | 5 |
| P2 | 10 | 3 | 2 |
| P3 | 7,5 | 1,5 | 1,5 |
| P4 | 5 | 1 | 1 |
| P5 | 3 | 0,6 | 0,75 |
| P6 | 1,5 | 0,2 | 0,5 |
| P7 | Not applicable | | |

2. Guide on the limitation of the effects of obtrusive light from outdoor lighting installations. CIE 150:2003

The purpose of this Guide is to help formulate guidelines for assessing the environmental impacts of outdoor lighting and to give recommended limits for relevant lighting parameters to contain the obtrusive effects of outdoor lighting within tolerable levels.

Sky glow: The brightening of the night sky that results from the reflection of radiation

- a. Natural sky glow and
- b. Man - made sky glow (light emissions).

Spill light (stray light).

Upward Light Output Ratio (ULOR).

Upward Light Ratio (ULR).

Influence of surrounding developments

The perception of the lighting system may be significantly by the following factors:

- a. The zoning. There is a greater potential for complaints where the area is zoned for residential development.
- b. On whether the area is sparsely settled or fully built-up.
- c. The topography of the area surrounding the lighting installation. Residential developments which are at a lower level than that of the lighting installation should be particularly considered, where a direct view of the luminaires is possible.
- d. Physical features such as adjacent tall buildings, trees and spectator stands, which may be effective in restricting light spill beyond the boundaries of the development.
- e. The presence or absence of other lighting in the immediate area and the type of lighting involved. The effect of the proposed lighting will be lessened where the surrounding area is reasonably well lit, e.g. arterial road lighting from adjacent commercial developments.
- f. The location of the proposed development relative to:

1. Areas of special significance, e.g. areas having cultural, historical or scientific importance.
2. Harbours, airports, waterways. Roads or railway systems where spill light from the proposed development may interfere with the visibility of signaling systems.
3. Community and scientific optical observatories where upward light from the proposed development because of resulting sky glow may interfere with astronomical observations.

Specific effects and relevant light technical parameters

Effects on the natural environment

The effects of lighting on the natural environment can be difficult to quantify. When there are fields, mountains, forests, rivers, lakes and/or coastline, located close to a lighting installation, there is no possibility, depending upon the season, of the lighting having an adverse effects on insects, plants and animals within the area.

I. Wild plants and animals

a. Insects

Some insects, such as moths, are phototactic (attracted by light), while others such as fireflies are lucifugal (dislike and therefore avoid light). For both of these insect species, the effects of night-time lighting are significant.

b. Mammals, amphibians and reptiles

The environmental effects of night lighting on the habitats of nocturnal mammals can be significant. Many species of mammals, amphibians and reptiles come to feed on insects that gather at lights during the night and for this reason it is important to take care of their habitats.

c. Birds

It has been reported that the distribution of bird habitats has been changing in conjunction with the urbanization of suburbs that still have natural environment remaining. In particular, it is feared that night-time lighting will have effects on birds of prey such as owls and other species which live in forests. However, there are still many unresolved aspects concerning the quantitative effects of night-time lighting on birds so future research is being anticipated.

d. Fish

While some fish species are attracted by light others tend to avoid it. Furthermore, different species react differently depending upon the illuminance or type of light. Future research is needed since the effects of lighting on fish are still unknown and appropriate illuminance levels are not known.

e. Plants

It is possible that night-time lighting has an effect on plant ecosystems. There have been reports on the effects of lighting on the physiology of photosynthesis and growth and biological seasons, effects on bud formation in short day plants and long day plants, effects on pollinating insects, and so on. It has been confirmed that artificial lighting has different effects on different species of roadside plants in urban areas. For example Zelkova and Gingko are not affected by light while Liriodendron (tulip tree) and Chinese Parasol are affected.

Therefore, it is desirable that night-time lighting installations be set up at appropriate locations and that various other factors, depending upon the plant species, such as the wavelength and intensity of the light, the season and time of lighting, and so on are adequately considered.

f. Ecosystems

Many points concerning the impact of night-time lighting on entire ecosystems, including wild plants and animals, remain unclear so future research in this subject is being keenly anticipated.

Effects on residents

Effects on residents generally involve a perceived change in amenity arising from either of the following:

- a. The illumination from spill being obtrusive, particularly where the light enters rooms of dwellings that are normally dark, e.g. bedrooms. The illuminance on surfaces (E), particularly vertical surfaces, is an indicator of this effect.
- b. The direct view of bright luminaries from normal viewing directions causing annoyance, distraction or even discomfort. The luminance of a luminaire, in a nominated direction, is an indicator of this effect. However, because luminance data is not normally provided by luminaire manufacturers and because of difficulties associated with the measurement of luminance,

recommendations in this Guide are expressed in terms of the luminous intensity (I) in specified directions.

The tolerance levels of each of these light technical parameters will be influenced by the ambient lighting existing in that environment.

Effects on transport system users

Effects on transport system users (e.g. motorists, cyclists, pedestrians) normally involve a reduction in the ability to see caused by disability glare from bright light sources. The apparent contrast of objects against their backgrounds will be lowered, rendering them less visible or even invisible, especially if the environment is intrinsically dark. The magnitude of the effect will depend on the level of lighting to which the user is adopted.

Effects on transport signaling systems will normally involve a reduction in the visibility of the signals either by:

- a. Disability glare, as described above; or
- b. Visual clutter, where signals are viewed against a competing background of other lights; the effect is made worse if these lights are coloured.

Effects on sightseers

The effects on sightseers of over-bright or unsuitably-coloured decorative lighting and signage will be to regard the overall lighting effects as obtrusive rather than enhancing the night-time scene. Good guidance on decorative floodlighting techniques is given in CIE 94-1993. The relevant indicator will be the luminance (L) of the surfaces. The acceptable luminance of signs will depend on the size of the surface viewed.

Effects of astronomical observations

Effects on astronomical observations will generally involve the modification of night sky viewing conditions by:

- a. Brightening of the dark sky caused by the scattering of light from the installation in the atmosphere, producing a luminous glow. (i.e. sky glow).

- b. The spectral characteristics of the sky glow, so that the light from the glow is not readily filtered out by optical means at the telescope.
- c. Direct light from the installation falling on the observatory.

Where outdoor lighting installations are proposed in the vicinity of community or scientific optical observatories located in suburban environments, the limitations of spill light and luminance of luminaires in nominated directions will mitigate the adverse effects of direct light falling on the optical surfaces of the telescope.

Sky glow is an area-wide problem which is less amenable to control. Because sky glow is caused both by reflected light and direct light from the installations, restricting design illuminances to the minimum necessary for the application will provide additional mitigation.

The majority of the light that is emitted directly from luminaries near to or above the horizontal causes sky glow. This in its simplest form can be controlled by limiting the upward light output ratio of the luminary. However, this will only be relevant if the luminary is mounted horizontally in a fixed position, as in road lighting. To cater for those situations where the luminary may be at any angle the parameter 'Upward Light Ratio' (ULR) is appropriate.

Studies have shown that intensity of bright light sources necessary to satisfy the majority of people as being at all times unobtrusive are rather low. Furthermore, these values can easily be exceeded with conventional lighting practice, especially if the area of activity being lit is large and the required light level is relatively high.

Therefore, two sets of limiting values are given dependent on the levels of lighting already in the area. One, with higher values, is for application before a nominated or curfew hour set by the controlling authority and one, with lower values, is for application after that hour.

Compliance with the recommendations will require a detailed analysis of the situation with the identification of actual potential problems = locations.

Post curfew hours should be taken as being between 23.00-06.00 hours, unless otherwise specified by the controlling authority.

Ratio of flux

Ratio of flux on use surface divided by the lamp flux must range from 3.5 to 0.42 for High Pressure Sodium HPS lamps and Metal Halide HIT lamps. The maintenance factor M (Ratio of the medium illuminance on a plane after a determined time of use and the medium illuminance of a totally new installation under the same conditions) must be for HPS and HIT lamps FROM 0.56 TO 0.84. The luminous efficacy must be around 97 lm/W. All this divided by the coefficient related to the type of the road surface R. Max 14 for HPS and HIT and HIT lamps. The density should be not greater than 0.1 Lux/m.²

Articles from “Phileleftheros” Cypriot newspaper

Οι διοργανωτές υπόσχονται άθρονο αλκοόλ και «λοιπά»

Οστόσο, τις ανησυχίες των κατοίκων και των υπαλλήλων επισκεπτιών της Αγίας Νάπας, στο μέγεθος και το βαθμό που εκφράζονται από πολλούς τουριστικούς παρόντες της περιοχής, δεν απασχολεί ο δήμος Αγίας Νάπας. Σύμφωνα με το δημάρχου Αντώνη Τοδερκό, το δε βόρεια δεν είναι τόσο αρνητικό και το θέμα συζητείται στο ΜΑΜΕ με την αντιπαράθεση, αλλά στην δια-

[illegible]

Σε κρατική γη έκτισαν αυθαίρετα €1,85 εκατ.

Πρόσφυγες έβαλαν χέρι στην οικιστική ζώνη της Αγ. Νάπας

ΤΟΥ ΜΙΧΑΛΗ ΧΑΤΖΗΣΤΥΛΙΑΝΟΥ

Σκάνδαλο συνιστά η αουσία που απολαμβάνουν για 30 περίπου χρόνια δεκάδες ιδιοκτήτες κατοικιών στην Αγία Νάπα, οι οποίοι, μετά την τουρκική εισβολή, οικειοποιήθηκαν μεγάλες εκτάσεις κρατικής γης εντός της οικιστικής περιοχής. Παρ' όλο δε που το Υπουργικό Συμβούλιο, τους είχε παραχωρήσει το δικαίωμα να αγοράσουν την κρατική γη πάνω στην οποία έκτισαν παράνομα ή να διευθετήσουν σταδιακά τις οφειλές τους, εντούτοις, οι ίδιοι αρνούνται πεισματικά να έλθουν σε συμβιβασμό. Το λαβείν του κράτους υπολογίζεται περίπου στο €1,85 εκατ. (με τιμές του... 1989).

Η αυθαίρετη οικειοποίηση κρατικής γης άρχισε λίγο μετά την τουρκική εισβολή, όταν οικογένειες που εγκαταστάθηκαν, μεταξύ άλλων και στην Αγία Νάπα, προχώρησαν στην ανέγερση κατοικιών στο "περίπου". Ουσιαστικά, έβαλαν "χέρι" σε κρατική γη που βρίσκεται εντός της οικιστικής ζώνης, επεκτείνοντας με τη μέθοδο αυτή το εμβαδό των κατοικιών τους πάνω στις πλάτες του κράτους.

19 χρόνια το Υπουργικό τους... παρακαλεί να συμμορφωθούν

”

Η πρώτη εκτίμηση

Για πρώτη φορά οι παρανομίες καταγράφηκαν από λειτουργούς του Κτηματολογίου το 1989. Έπειτα από επιτόπιο έλεγχο διαπιστώθηκαν 92 περιπτώσεις επεμβάσεων ιδιωτών σε κρατική γη. Όπως μας λέχθηκε από το υπουργείο Εσωτερικών, επειδή το ζήτημα ήταν πολύ σοβαρό, τέθηκε ενώπιον του τότε Υπουργικού Συμβουλίου. Το Υπουργικό, με σχετική απόφασή του, έδωσε οδηγίες όπως, στις περισσότερες περιπτώσεις, πωληθεί η γη ο' αυτούς που προέβησαν στην επέμβαση, οι οποίοι είχαν στο μεταξύ διευθετήσει τα ενδιάμεσα οφέλη που προέκυψαν από την παράνομη κατοχή και χρήση της κρατικής



Οι παρανομούντες εδώ και 30 χρόνια απολαμβάνουν την κρατική ανοχή, αφού, παρά τις κατά καιρούς εξαγγελίες και υποδείξεις, κανείς δεν τους ενόχλησε. Το ζήτημα επανήλθε στο προσκήνιο έπειτα από έρευνα της Γενικής Ελέγκτριας, με την επιστολή της στο υπ. Εσωτερικών. Η φωτογραφία είναι από το αρχείο του «Φ» και δεν έχει σχέση με τα αυθαίρετα.



ΤΟ ΧΡΟΝΙΚΟ ΤΗΣ ΑΡΠΑΓΗΣ

1974 Λίγο μετά την εισβολή, οικογένειες προσφύγων

μήθηκε στο €1,85 εκ..

Δεύτερη ευκαιρία

Το ζήτημα τέθηκε εκ νέου ενώπιον του Υπουργικού Συμβουλίου στις 12/1/2005, όταν διαπιστώθηκε ότι σχεδόν όλοι όσοι προέβησαν σε επεμβάσεις δεν συμμορφώθηκαν. Παρά την αρχική του απόφαση για να ληφθούν δικαστικά μέτρα εναντίον των παράνομων που δεν συνεργάζονται με τις Αρχές του κράτους, εντούτοις, το Υπουργικό σε νέα του συνεδρία δεν άναψε το "πράσινο φως" στον υπουργό Εσωτερικών για να κινήσει τις δικαστικές διαδικασίες μέσω του Γενικού Εισαγγελέα της Δημοκρατίας για τερματισμό των επεμβάσεων.

Αντίθετα, το Υπουργικό Συμβούλιο με νέα απόφασή του (αρ. 61.451) έδωσε άλλη μια ευκαιρία στους παρανόμους για να διευθετήσουν τις οφειλές τους, μέσα σε ένα χρόνο από την ημερομηνία κοινοποίησης προς αυτούς της απόφασης και σε περίπτωση που και πάλι δεν συμμορφωθούν, τότε να ληφθούν δικαστικά μέτρα εναντίον τους. Παράλο που η προθεσμία του ενός χρόνου που δόθηκε για δεύτερη φορά από το Υπουργικό Συμβούλιο είχε εκπνεύσει από τα τέλη του 2006, εντούτοις, το υπουργείο Εσωτερικών δεν αποτάθηκε στον Γενικό Εισαγγελέα για τη λήψη δικαστικών μέτρων, με τους παρανόμους να γράφουν στα παλαιότερα των υποδημάτων τους, τους νόμους αλλά και τις αποφάσεις του Υπουργικού.

Στον Γενικό Εισαγγελέα

Την υπόθεση "Εξοκόνιας" η Γενική Ελέγκτρια της Δημοκρατίας Χρυστάλλα Γιωρκάτζη, η οποία ζήτησε εξηγήσεις από το υπουργείο Εσωτερικών για τους λόγους που οι παρανομούντες εξακολουθούν να απολαμβάνουν αουσία. Στην απαντητική του επιστολή του υπ. Εσωτερικών έδωσε διαβεβαιώσεις ότι θα ληφθούν δικαστικά μέτρα εναντίον τους. Ειδικότερα, στην επιστολή, την οποία εξασφάλισε ο «Φ», αναφέρεται ότι:

"Το πρόβλημα προκύπτει από το γεγονός ότι η διαδικασία για επίλυση των προβλημάτων σε σχέση με τις επεμβάσεις αυ-

Το Πρόβλημα των παρανομούντων
Το πρόβλημα προκύπτει από το γεγονός ότι η διερεύνηση σε σχέση με τις επεμβάσεις αυτές, δηλαδή η απόφαση του Υπουργικού Συμβουλίου, η εξαγγελία, η εξαγγελία με μορφή και άλλους, κλπ.
Το Υπουργικό Συμβούλιο, με τη νέα απόφασή του αρ. 61.451, έδωσε μια δεύτερη ευκαιρία στους παρανόμους να διευθετήσουν τις οφειλές τους, μέσα σε ένα χρόνο από την ημερομηνία κοινοποίησης προς αυτούς της απόφασης και σε περίπτωση που και πάλι δεν έχουν συμμορφωθεί, τότε θα ληφθούν δικαστικά μέτρα εναντίον τους.

Αντίγραφο της απόφασης του υπ. Εσωτερικών, το οποίο διαβεβαιώνει (ξανά) ότι η υπόθεση θα πάει το δρόμο της Δικαιοσύνης.

Κύπριοι αλλά και ξένοι τουρίστες ζητούν την αποπομπή των ενοχλητικών νεαρών

Κατακραυγή για τις φατριές των Dj

► Ακολουθούν γνωστούς Dj σε διάφορες χώρες και λύνουν τις διαφορές τους με βία. Στην Αγία Νάπα αποτελούν φρόνιτρο σε ντόπιους και ξένους. Ικανοποίηση από τις αυξημένες περιπολίες αστυνομικών

ΓΡΑΦΕΙ
ΒΑΣΙΟΣ ΒΑΣΙΟΥ

Οργή και ανησυχία επικρατεί στην Αγία Νάπα για την εσπερινή συμπεριφορά οργάνων και αντιμαχόμενων ομάδων από νεαρούς Βρετανούς, που συνοδεύουν και υποστηρίζουν γνωστούς ντζί που επιλέγουν μοναξιά σε χώρους διασκέδασης στην περιοχή. Είναι αδυσώπητο το γεγονός ότι την απειρότητα τους για το "κατακράτημα" των εν λόγω νεαρών από τη Βρετανία εκφράζουν όχι μόνο κληρικοί κατακοίτες και επισκέπτες στην Αγία Νάπα, αλλά και τουρίστες προερχόμενοι από τη Ρωσία, τη Γερμανία, τις σκανδιναβικές χώρες ακόμα και την ίδια τη Βρετανία. Το γεγονός ότι σχεδόν όλοι οι "οπαδοί" των ντζί είναι μωβρού δεν φανερώνει να είναι ο καθαρστικός παράγοντας για την κατακραυγή εναντίον τους, αφού μετά από το μαρτυρικό τσιγάρο εναντίον τους, αφού μέσα από το μαρτυρικό τσιγάρο προκύπτει αβυσσότητα ότι αυτή που απορρίπτεται από την τοπική κοινωνία και τους άλλους επισκέπτες είναι η συμπεριφορά και οι πράξεις αυτών των νεαρών και όχι το χρώμα τους.

Σχεδόν πανταχούθεν, όλα όσα μέλυναν στον "Πολίτη" δηλώνουν ενάντια από την παρουσία και τη δράση των οπαδών - θαυραστών των ντζί, οι οποίοι μόνο προβλήματα και οχλήτρια προκαλούν, σύμφωνα με τις μαρτυρίες. "Με τις τεραστίες μεταου- μένες τους σπρώχνουν το χωριό στο πόδι", καταγγέλλουν οι κάτοικοι.

Ενδεστικές είναι οι απόψεις που καταγράφει χέως η εφημερίδα μας από κατοίκους και επιχειρηματίες του τουριστικού θερέτρου της Ελλάδας Αμμοχώστου, οι οποίοι δηλώνουν εμφαντικά πως εάν οι εν λόγω Βρετανοί δεν εγκαταλείψουν σύντομα το χωριό, τότε η εικόνα της Αγίας Νάπας, ως τουριστικού προο- ρισμού, θα είναι καταστροφική.



Η κεντρική πλατεία της θάλασσας. Εδώ, σύμφωνα με τις καταγγελίες, οι νεαροί Βρετανοί οργάζονται...

Δεν καταγγέλλουν

Οι "φατριές" των διαφόρων ντζί συναντώνται στην Αγία Νάπα και λύνουν τις διαφορές τους με μαχητικότητα και κοβήτρες, χωρίς όμως να φροδώνονται με επικριτική διάθεση στον εαυτό τους.

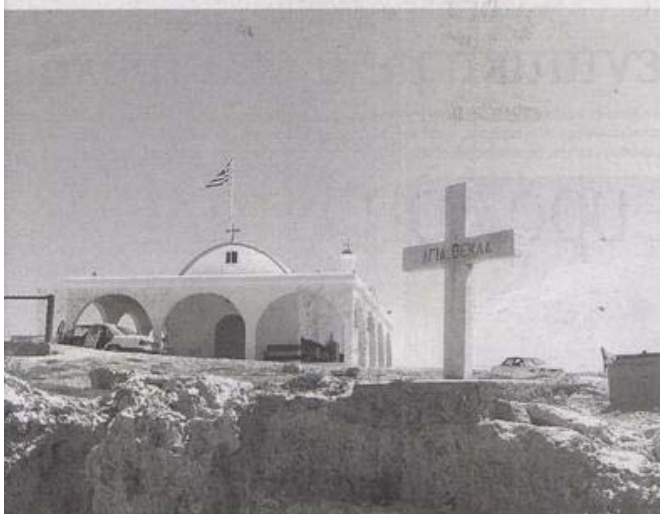


Ο αστυνομικός διευθυντής Αμμοχώστου Δημήτρης Παπακωνσταντίνου.

είπε ο κ. Παπακωνσταντίνου, η πλειοψηφία αυτών των ατόμων "κουβαλών" στην Κύπρο τις διαφορές που έχουν με μέλη άλλων "φατριών", γι' αυτό και η Αστυνομία αντιμετωπίζει ιδιαίτερα μόνιμα μετατραπεί η Αγία Νάπα σε "μέκκο μαχής" για την επίλυση αυτών των διαφορών. Σύμφωνα με τον Αστυνομικό Διευθυντή Αμμοχώστου, μέχρι στιγμής έχει απασχολήσει την Αστυνομία μόνο ένα περιστατικό μαχητικότητας, αυτό που συνέβη το προηγούμενο Σάββατοκύριακο στην Αγία Νάπα, όταν νεαρός Άγγλος βρέθηκε τραυματισμένος και μεταφέρθηκε στο Νοσοκομείο Αμμοχώστου. Το θέμα, ωστόσο, αρνείται επίμονα να συνεχιστεί με την Αστυνομία. Τα άτομα αυτά δεν επιδίδονται εμπλοκή της Αστυνομίας στις διαφορές τους, γι' αυτό και αρκετές φορές, μετά από κάποιο επει- σόδι, τους αφήνουν να πάνε χωρίς να τους συλλάβει.

Ε. ΜΑΡΤΙΝΟΥ

Ε. ΜΑΡΤΙΝΟΥ



Ο θρύλος της Αγίας Θέκλας

Οι πρόγονοι των κατοίκων της Σωτήρας ζούσαν στο Θρονί

Υ ΠΑΜΠΟΥ ΒΑΣΙΛΑ

Μια από τις ομορφότερες παραλίες των Κοκκινόχωριών συνδέεται με ένα ενδιαφέροντα θρύλο, που καταδεικνύει την κυτταρική ιστορική διαδρομή του τόπου μας. Είναι η παραλία της Αγίας Θέκλας, κοντά στο ομώνυμο εκκλησάκι της κοινότητας, το οποίο οριοθετεί τα σύνορα Αγίας Νάπας και Σωτήρας. Το θρύλο και την ορία της περιοχής μας πηγήθηκαν τα αδέλφια Ίθης και Βάσος Ευθίου που εργάζονται στην παραλία αυτή των κινόχωριών. Την παλιά με το δικό της νη-κι απέναντί, τα καταγάνα καθενός, τις ενδιαφέρουσες σπινιές στην παραλία της Αγίας Θέκλας, σταματούν εδώ, δίπλα από το εκ-κασάκι, που «το έκτισεν ο Φασαρίας υ τή Σωτήρα πριν εκατό χρόνους».

Οι επιθέσεις των Σαρακηνών και η αναζήτηση της νέας γης

υπάρχει μια μικρή κατακόμβη, που ονομάζεται κατακόμβη της Αγίας Θέκλας. Η κατακόμβη αυτή, πιστεύεται ότι δημιουργήθηκε ίσως τον 5ο μ.Χ. αιώνα, για να προστατεύει τους ιστορικούς προγόνους των σημερινών Σωτηριανών. Δηλαδή, των Θρονιτών, που διέμεναν σε οικισμό πολύ κοντά στην τοποθεσία και το πρώτο εκκλησάκι της Αγίας Θέκλας, το οποίο χαλάστηκε εκείνη την περίοδο.

Σύμφωνα λοιπόν με το θρύλο της Αγίας Θέκλας, επί Βυζαντινής Εποχής στην Κύπρο, από πέλα-γος ανοικτά της Αγίας Θέκλας ξεπρόβαλλαν με τα καράβια τους οι Σαρακε-νοί. Οι «Σαρατζίνοι», που με την αγριότητα και τη δύναμη των όπλων τους, επιτίθονταν στους δυ-στυχείς Θρονίτες, κατακλέβοντας το βίος τους και καταστρέφοντας τον οι-κισμό τους. Απελπισμένοι από την κα-τάσταση αυτή οι Θρονίτες πήραν την απόφαση να φύγουν από τον οικισμό

τους και να αναζητήσουν σωτηρία. Δη-λαδή, ένα μέρος που να μη φαίνεται εύκολα από τη θάλασσα της Αγίας Θέ-κλας. Έτσι, περπατώντας και αναζη-τώντας τη νέα γη που θα τους φιλοξε-νούσε, έφτασαν εκεί που βρίσκεται σήμερα η Σωτήρα, περίπου πέντε χι-λιόμετρα από την Αγία Θέκλα. Σκε-πτόμενοι πιο όνομα θα έδιναν στο νέο οικισμό που δημιούργησαν, κατάλη-ξαν στην ονομασία «Σωτήρα», αφού σώθηκαν από τους Σαρακηνούς. Έτσι, κάπου στον 5ο μ.Χ. αιώνα δημιουργή-θηκε η κοινότητα της Σωτήρας Αμμο-χώστου, που υπάρχει μέχρι τις μέρες μας. Την ιστορία μπορούν να σας την αφηγηθούν με περισσότερες ακόμη λεπτομέρειες ο Βάσος, ο Στάθης και η παρέα τους. Και να ξέρετε ότι η ιστο-ρία σεβρίζεται και με... κανίσσι. Εμείς πετύχαμε ανανά Σωτηρικάτικο. Στην παραλία υπάρχει επίσης και αναψυ-κτήριο. Και το πιο σπουδαίο το αφή-σαμε και τελευταίο: Αρκετές ομπρέ-λες της παραλίας είναι καμωμένες από ψαθωρές.





Κορσές στο πάρτι-μαμούθ στην Αγ. Νάπα

«ΤΑ ΠΑΡΤΙ επιτρέπονται, τα παρατράγουδα όχι» και ψες όσοι αμφισβητούσαν την ικανότητα της Αστυνομίας να επιληφθεί κάθε παρανομίας και να διασφαλίσει την ομαλότητα στην Αγία Νάπα, επρόκειτο να πάρουν απαντήσεις. Σύμφωνα με πληροφορίες του «Φ», η Αστυνομική Διεύθυνση Αιμακώστου

Κινητοποίηση Αστυνομίας για διασφάλιση της ομαλότητας

και ενισχύσεις από τη Λευκωσία, επρόκειτο να θέσουν υπό διακριτική εποπτεία τους χώρους όπου επρόκειτο να διεξαχθούν πάρτι Βρετανών συμμοριτών. Σ' ένα από τα πάρτι, πληροφορίες ανέφεραν ότι επρόκειτο να παραστούν πέραν των χίλιων ατόμων, που πλήρωσαν 41 ευρώ για δικαίωμα εισόδου και κατανάλωση απεριόριστου αλκοόλ. Η νέα αστυνομική κινητοποίηση στην Αγία Νάπα, κρίθηκε αναγκαία μετά από πληροφορίες που κυκλοφόρησαν για πάρτι-μαμούθ ψες και τις οποίες επιβεβαίωσε η Αστυνομία.

ΠΑΜΠΟΣ ΒΑΣΙΛΑΣ



Νυ Φεστιβάλ Αγίας Νάπας

Ή ήταν το "κάτι άλλο" του εφετινού 25ου Φεστιβάλ της Αγίας Νάπας, η κοινή μουσικο-χορευτική παράσταση των συγκροτημάτων "Αζώφ" της Ρωσίας και "Ρυθμός" Παραλιμνίου. Ήταν δεξιοτεχνία, απaráμιλλη ομορφιά και εντυπωσιακά κουστούμια συνέθεταν ένα σκεδόν υπερθέαμα το οποίο καταχειροκροτήθηκε και οι καλλιτέχνες γνώρισαν την νίκη.

Ήρξε εντυπωσιακό το κλείσιμο της μεγάλης τριήμερης εκδήλωσης η οποία συγκλήθηκε βράδυ γύρω στις 2 χιλιάδες κόσμο.

Πάφος: Πανίκος Μιχαήλ, τηλ. 26934369, 99413123. Επίσης γίνεται δεκτή η υποβολή της αίτησης με τηλεομοίτυπο (ΦΑΞ) στον αριθμό 24367430 (Λεύκος ελευθερίας/Γραμματέας). Οι

γραμμάκια που θα παρουσιάσει ο Μιχαήλ Τερλίκας με την Μουσική του Παρέα.

Για περισσότερες πληροφορίες και δηλώσεις συνι-

...αντιφάσεις, ερ-
...στα θέματα του δαγμά-
...ου και του πότους».

Ο Αρχιεπίσκοπος Χρυσόστο-
μος πιστεύει ότι το Οικουμενι-
κό Πατριαρχείο γνωρίζει πολύ

...και να
...καταλάβ-
...κλίνει από
...παράδοση της
...πρώτης Εκκλησίας, πριν από το

...Ρωμαιοκαθολικοί. Ήδη, μικτή
...υποεπιτροπή έχει ετοιμάσει
...προσέδριο εγγράφου εργασίας
...από περίπου 15 σελίδες, το

...λος του Επισκόπου.
...ωνία της Εκκλησίας κατά τη
...πρωτη Χιλιετία».

A. ΒΙΚΕΤΟΣ

Συμπλοκή με μαχαίριές στην Αγ. Νάπα

ΕΝΑΣ 29χρονος Ρώσος τουρίστας και ένας 40χρονος Αιγύπτιος, μόνιμος κάτοικος Κύπρου, ο οποίος εργάζεται ως φρουρός ασφαλείας σε μπιραρία της Αγίας Νάπας, μεταφέρθηκαν σε ιδιωτικές κλινικές με μαχαίριές στα χέρια και στα πόδια, ύστερα από συμπλοκή στην κεντρική πλατεία της Αγίας Νάπας.

Σε δηλώσεις του, ο εκπρόσωπος Τύπου της Αστυνομικής Διεύθυνσης Αμμοχώστου, Γιώργος Οικονόμου, ανέφερε ότι «γύρω στις 01.20 χθες τα ξημερώματα περίπολος του ΟΠΕ Αμμοχώστου

αντιλήφθηκε έξω από μπιραρία στην Αγία Νάπα δύο τραυματισμένα πρόσωπα».

Σύμφωνα με τον κ. Οικονόμου, «από έρευνες που έγιναν διαπιστώθηκε ότι επρόκειτο για ένα Αιγύπτιο, ηλικίας 40 ετών, μόνιμο κάτοικο Κύπρου, ο οποίος εργάζεται ως φρουρός ασφαλείας σε μπιραρία στην Αγία Νάπα και για έναν 29χρονο Ρώσο τουρίστα».

Πρόσθεσε πως «σύμφωνα με μαρτυρία που εξασφαλίστηκε, ο φρουρός ασφαλείας της μπιραρίας όταν έκανε πα-
ρατήρηση στο Ρώσο τουρίστα επειδή τσα-

κωνόταν με άγνωστο αλλοδαπό, ο Ρώσος τον τραυμάτισε με μαχαίρι στο χέρι. Σύμφωνα πάντα με τη μαρτυρία, ο Ρώσος τραυματίστηκε και ο ίδιος με μαχαίρι στο πόδι». Και οι δύο, ανέφερε, μεταφέρθηκαν σε ιδιωτικές κλινικές στην εποχρία Αμμοχώστου για νοσηλεία.

«Η κατάσταση της υγείας και των δύο είναι εκτός κινδύνου», ανέφερε ο κ. Οικονόμου, προσθέτοντας πως «η Αστυνομία Αμμοχώστου διερευνά τις συνθήκες κάτω από τις οποίες τραυματίστηκαν οι δύο αλλοδαποί, καθώς και τα αίτια που προκάλεσαν την αιματηρή συμπλοκή».

**Σκηνή
τρόμου στην
κεντρική
πλατεία**

Ο ΦΙΛΕΛΕΥΘΕΡΟΣ ΔΕΥΤΕΡΑ 14 ΔΕΚΕΜΒΡΙΟΥ 2009



Ενίσχυση χειμερινού τουρισμού σε Αγ. Νάπα

ΣΕ ΜΙΑ προσπάθεια να βοηθηθεί και να αναπτυχθεί ο χειμερινός τουρισμός, αρκετά εστιατόρια, μπιραρίες και άλλα υποστατικά στην Αγία Νάπα και τον Πρωτόρα, παραμένουν ανοικτά και εξυπηρετούν το κοινό. Ο λειτουργός προώθησης της Συντονιστικής Εταιρείας Τουριστικής Ανάπτυξης των δυο περιοχών κ. Λάκης Αβρααμίδης, δήλωσε ότι η κατάσταση είναι ικανοποιητική αν και μπορούσε να ήταν και καλύτερη. Ο φετινός χειμώνας, όπως είπε, είναι περίπου στα ίδια επίπεδα με τα περσινά. Φυσικά, ανέφερε ο κ. Αβρααμίδης, δεν είναι αυτό που επιθυμούν και επιδιώκουν. Πι-

**Παραμένουν
ανοικτά
εστιατόρια
και μπιραρίες**

στεύει, ότι με τη συμπλήρωση κάποιων έργων υποδομής από την ερχόμενη χρονιά θα έχουν μια αυξημένη κίνηση και σταδιακά θα ανέβουν σε ψηλά επίπεδα όσον αφορά τον χειμώνα. Κατά τη φετινή χρονιά θα απτρωθούν πολύ στους Σκανδιναβούς τουρίστες μακράς διαμονής, οι οποίοι επισκέπτονται την Αγία Νάπα για δυο έως τρεις μήνες. Μια αυξημένη κίνηση παρατηρείται από την Γερμανική αγορά και φυσικά προσδοκούν και στις ποδοσφαιρικές ομάδες, οι οποίες θα πάνε στην περιοχή κατά τη χειμερινή περίοδο για προετοιμασία. Παράλληλα, πρόσθεσε, προσβλέπουν και σε αυξημένους αριθμούς από την εσωτερική αγορά διότι, όπως είπε, η Αγία Νάπα από μόνη της θα κάνει μια διαφημιστική εκστρατεία για προσέλκυση Κυπρίων τα Χριστούγεννα και την Πρωτοχρονιά στην ελεύθερη περιοχή Αμμοχώστου, κάτι το οποίο γίνεται σε μεγάλους αριθμούς. Πιστεύουν φέτος, ότι με την εκστρατεία που θα γίνει οι αριθμοί αυτοί θα αυξηθούν και τα ξενοδοχεία τα οποία είναι σε λειτουργία θα έχουν έναν ικανοποιητικό αριθμό επισκεπτών κατά τη διάρκεια των εορτών, κατέληξε ο κ. Αβρααμίδης.

Χειροβουβίδα σε μπιραρία της Αγίας Νάπας

Στόχος επίθεσης με αμερικανική αμυντική χειροβουβίδα τύπου M26 έγινε μπιραρία ζευγούς Ρώσων που βρισκεται στην Αγία Νάπα, αφού όταν πήγαν να ανοίξουν βρήκαν τη ζαμαρία σπασμένη και μέσα στη μπιραρία μια χειροβουβίδα.



Σε δηλώσεις του ο Γιώργος Οικονόμου εκπρόσωπος Τύπου της Αστυνομικής Διεύθυνσης Αμμοχώστου ανέφερε ότι «γύρω στις 10 το πρωί εντοπίστηκε από συντηρητή μπιραρίας στην Αγία Νάπα, μέσα στο χώρο της μπιραρίας, μια αμυντική χειροβουβίδα αμερικανικής κατασκευής που δεν είχε εκραγεί».

Πρόσθεσε πως η χειροβουβίδα «ρίχθηκε κατά τη διάρκεια της νύχτας από αγνώστους στη μπιραρία η οποία ανήκει σε Ρώσους μόνιμους κατοίκους Κύπρου. Επειδή η χειροβουβίδα δεν είχε εκραγεί, κλήθηκαν

πυροτεχνουργοί του Αρχηγείου Αστυνομίας οι οποίοι με ελεγχόμενη έκρηξη την εξουδετέρωσαν» είπε.

Στη σκηνή μετέβησαν επίσης άνδρες του ΤΑΕ Αμμοχώστου για δακτυλосκοπικές εξετάσεις.

Το ζεύγος υποστηρίζει ότι δεν είχε διαφορές με κανένα, ωστόσο η Αστυνομία εκτιμά ότι πίσω από την επίθεση κρύβονται επαγγελματίες διαφορές. Η ΟΣΕΚΑ καταδικάζει το γεγονός.

Evening Standard WEDDING SPECIAL
NICOSIA, 18 SEPTEMBER 1999

KING LEON?
WE SPEAK TO 'WIFE' - WORLD EXCLUSIVE PAGE 3

NO SLEEP 'TIL
AYIA NAPA


by DANIELA HATHAWAY Foreign Correspondent


by HANNA JACKSON
Gossip columnist


What a party they 'lay-

Greek Cheeks

AYIA NAPA COULD ONLY LOOK ON IN wilderment as the cowgirls rocked into town, wielding lethal vodka laden pistols. As they disappeared into the zebra striped club, the vodka fired by these foxy babes, could they gaze up at the screens outside and catch the girls gyrate. Sascha Theodorou, bride to be was hailed the new Disco Queen as men queued to dance with her.

Earlier the bride, groom and a multinational medley of friends had feasted on the salubrious of Cyprus whilst drinking copious amounts of alcohol, including Zavinir - the potent local drink (highly recommended by the jovial driver of their white stretch sedes). It was a chaotically happy crowd of men and women that had divided and their way into Ayia Napa.

Legend was born in Ayia Napa that night, seeing a naked stranger an outraged Australian tourist demanded that he cover himself. "I have my Sheila seeing that - she's got ideas". The tale filtered through the winding streets until the girls heard it. Who was this tall dark naked man? How could they have missed him? - Or did one of them catch him in her gauzy white veil?

Dawn came and went as the parties merged and reunited in a hot and sweaty tangle and the disco queen reclaimed her man. Writhing with relentless energy to the beat of Insomnia it was clear to all that the wedding celebrations had only just begun!

The guests gathered at the church, to witness the arrival of the Groom and his multinational Best-men arriving in style, in the shiniest Morris 1000, and the fashionably late, beautiful Bride and the even later Bridesmaids for the most hotly anticipated wedding of the year.

The mystical orthodox ceremony certainly mystified some - there was a struggle fitting the rings and the non-Greek speaking witnesses were more than a little confused by their duties. The Priest later commented, "the Bride and Groom seemed nervous but their Bridesmaids were just clueless - and were the Best-men all Serbs?" Despite these hiccups the couple were happily joined and the urge to celebrate their union, last seen in Ayia Napa, quickly reappeared.

In the garden of the church after the wedding, cameras flashed, congratulations were given, glasses were raised, a bird blessed the head of a bridesmaid, magic tricks were performed, new shoes were forged and cakes were carried to the wedding banquet.

The evening was a fabulous celebration of the traditions of the different cultures sent at the wedding, from the traditional Greek dancing for the forenoon to the custom of kidnapping the bride and the obligatory Greek dancing for the forenoon. Enjoyed by over two hundred guests, the celebrations lasted until the sun came up but this was not long enough for the revellers, who continued to dance their own music after the bride and groom had gone home. One of the guests said "they were just insatiable". Serbian liquor, dancing, and a piano! I wish I was there! party they were all here.

THANKS A MILLION FOR A RIGHT ROYAL WEDDING - LOTS OF LOVE DANIELA HANNA & CHRIS XX

From the English speaking newspaper Evening Standard. (Sept. 1999).

APPENDIX III

CORRESPONDENCE

Copy of the letter sent to dr Kramer, director of the PLDA about the profession of the lighting designer.

*VL-JUNK** Re: **VL-JUNK** Re: **VL-JUNK** Re: **VL-JUNK** Re: **V... Page 2 of 4

Regards
Dr. Kramer.

Am 24.09.2010 15:18, schrieb gt@gtlightdesign.com:

Dear Dr Kramer

I have sent you an e-mail suggesting ways to make things more clear and succeed on recognizing the profession. Please publish these suggestions to the other members for a general feedback. I think is good to have more opinions on the subject. It wouldn't mind to do it myself if you give me the indications.

As regards the DNA of the artistic people. Yes if you are not born an artist no institution can make you an artist. Many people don't like painting. They are good in other disciplines. The same with lighting design. An engineer's lighting design approach is totally different than an architect's lighting design approach. We must not expect recognition of the profession unless the lighting specialists are divided into categories and play their role accordingly. This is also a step to safeguard the rights of the clients too.

Let me give you an example.

For the international competition for the lighting of Niccolò within the walls the main participant of the team should have a degree in architecture and a post graduate degree in lighting design. The rest of the team should be engineers. Imagine an engineer- lighting designer deciding how to illuminate the historical monuments of the town without having studied history of architecture in the past or understand the aims of the architect of a building of the fifties. And imagine an architect- lighting designer deciding about all technical parts of the project. It would be a complete disaster!

It is obvious that the background of the lighting designers plays a vital role in the recognition of the profession.

Regards
Gorgos Theodorou

On Fri 24/09/10 11:57, schrieb gt@gtlightdesign.com:

Dear Dr Kramer

I will not make you spend any more with this subject.

I just feel that will help the association to be recognised as an organisation of Professionals if the lighting specialists are divided into three different categories:

1. Lighting Engineers (for the engineers)
2. Lighting Designers (for designers in general)
3. Lighting Architects. (for architects with a post graduate degree) This is a term already used by a prominent member of the association).

Each member who is not in possession of a post graduate degree on lighting must pass the examinations prepared by an independent organisation.

The PLDA could be renamed as PLSA (Professional Lighting Specialists Association).

This way is more clear what the association presents and each member will have his or her nomination that represents its background without any misunderstandings.

In my opinion this is the path that will lead to the recognition of the profession. I hope that this discussion will lead to more changes within the association.

With Best Regards
Gorgos Theodorou

On Fri 24/09/10 2:49 AM, lichtdesign lichtdesign-koeln@netcologne.de sent:

Dear Gorgos Theodorou,

[If you are convinced that designing and engineering is fix in our genes every kind of education does not make sense. The science of men has another opinion and PLDA, too.

Regards
Dr. Kramer.

Am 24.09.2010 07:59, schrieb gt@gtlightdesign.com:

Dear Dr Kramer

In my opinion the designer are born to design and the engineers are born to calculate. (There are always exceptions of course). It is in their DNA to do this kind of job. The approach of a lighting design of an engineer is not the same as the approach of a designer. The designer can design a special lighting fitting better than an engineer and an engineer can give better technical solutions than a designer. The seminars just help to make each other collaborate better. Not to become the same.

PLDA is mixing all the professions together and considers everybody as designers. I totally disagree with this.

Regards
Gorgos Theodorou.

On Thu 23/09/10 5:35 AM, lichtdesign lichtdesign-koeln@netcologne.de sent:

Dear
Gorgos Theodorou,

<http://gtlightdesign.com/tools/atmail/current/reademail.php?id=127&folder=Inbox&p...> 28/09/2010

APPENDIX VI

ESTIMATION OF COSTS FOR THE LIGHTING FITTINGS

| | | MONI HST 20W Xenon | | | | | |
|---|---|--------------------|------------------|------------------|------------------|------------------|------------------|
| | | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) |
| Lamps (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Luminaires (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total installation costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Operating costs for 6 years (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Burn time/day, winter, 4 months (hours) | 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Burn time/day, summer, 8 months (hours) | 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average burn time (annual hours) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp life approx. (hours) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Power absorption incl. ballast (kW) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement intervals (years) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 1st year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 2nd year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 3rd year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 4th year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 5th year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Electricity costs 6th year (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total electricity costs for 6 years (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total lamp replacement costs for 6 years (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lamp replacement | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cost man-hour (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average total annual costs (euro) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| Lamps (euro) | PORT | | MISSI | | MARIN | | PATWAY | | Total annual costs |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|
| | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | L-No. (quantity) | |
| Luminaires (euro) | 0.00 | 45630 | 0.00 | 50000 | 0.00 | 141000 | 0.00 | 60000 | 0.00 |
| Total installation costs (euro) | - | 25000 | - | 30000 | - | 50000 | - | 30000 | - |
| Operating costs for 6 years (euro) | 0.00 | 13152 | 0.00 | 3270 | 0.00 | 3270 | 0.00 | 7956 | 0.00 |
| Burn time/day, winter, 4 months (hours) | 7 | 5040 | - | - | - | 5040 | - | 5040 | - |
| Burn time/day, summer, 8 months (hours) | 5 | 7325 | - | - | - | 7325 | - | 7325 | - |
| Average burn time (annual hours) | - | - | - | - | - | - | - | - | - |
| Lamp life approx. (hours) | 0.00 | 50000 | 0.00 | 50000 | 0.00 | 50000 | 0.00 | 50000 | 0.00 |
| Power absorption incl. ballast (kW) | - | 1.19 kW | - | 0.5 kW | - | 0.5 kW | - | 0.5 kW | - |
| Lamp replacement intervals (years) | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 | - | 0.0 |
| Electricity costs 1st year (euro) | - | 2192 | - | 545 | - | 545 | - | 1326 | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Electricity costs 2nd year (euro) | - | - | - | - | - | - | - | - | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Electricity costs 3rd year (euro) | - | - | - | - | - | - | - | - | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Electricity costs 4th year (euro) | - | - | - | - | - | - | - | - | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Electricity costs 5th year (euro) | - | - | - | - | - | - | - | - | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Electricity costs 6th year (euro) | - | - | - | - | - | - | - | - | - |
| Lamp replacement costs (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Total electricity costs for 6 years (euro) | - | - | - | - | - | - | - | - | - |
| Total lamp replacement costs for 6 years (euro) | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 | - | 0.00 |
| Lamp replacement | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire | 10 min/luminaire |
| Cost man-hour (euro) | 0.00 | 80 | 0.00 | 80 | 0.00 | 50 | 0.00 | 90000 | 0.00 |
| Average total annual costs (euro) | - | 2192 | 545 | 1326 | 545 | 1326 | 545 | 1326 | - |
| Initial total: 83782 | | | | | | | | | |
| 42x12W = 504W x 7325h = 3713500Wh = 3713.5kWh/year | | | | | | | | | |

MINI HSE zw ZARIT Xenon

total = $\frac{22,500}{\text{initial cost}}$ units

0,8kw x 0,149 x 12365 = 7596
0,8 x 0,149 x 7225 = 7225